

RECORD

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C&D 178732

Donald S. Erdman

Field address
c/o Aramco
Ras Tanura
Mar. 3, 1948 Saudi Arabia

General Log & notes on

Persian Gulf

& Jeddah (Jidda) on the Red Sea

Fish Division
U. S. National Museum
Washington 25, D. C.

Middle East Journal April 1947

"Ibn Saud's program for Arabia" Richard H. Sanger

P. 186 "Irrigation in the central part of the country presents a different problem. Here the rainfall in the Tuwāḡ Mountains on the west sinks beneath the ground to the limestone table underlying much of that part of Saudi Arabia, and flows eastward under the Najd and al Hasa to come out in the Persian Gulf. The fishermen of the Bahrain Is. still obtain some of this water by diving overboard and filling their potters in the fresh water springs that bubble up in the Persian Gulf. The great oasis of Hofuf is kept fertile by forty artesian wells whose water swells up through breaks in the al Hasa limestone in sufficient quantity to irrigate more than 2 million date trees in Rijad, Dila, Buhaydah and Unayzah --- draw their water from these underground rivers." & "Most striking of all are the great water pits in and around al Kharj, 50 m. S. E. of Rijad. These are often one hundred yards across, they look like quarries but are really lakes formed by the collapse of the surface limestone table. They are filled to approx 100 ft. below surface of ground with fresh clean water that has made possible the ag. experiment at al Kharj."

people to meet

Mr. Richard H. Daggy, entomologist, Arab-Amor. Oil Co.
Dhahran, Saudi-Arabia

Acc. 178624 31 cyprinodonts, 1/20/48, artesian well
answer description Cyprinodon dispar (Ruppell) Saihat, Al Hasa, Saudi Arabia

Dr. Dick Kezer Beirut ref. to Dale Stewart
Ahmad Shakhur fish dealer for Aramco at Saihat

Hussain Tahir Abull Aziz, Aramco
Jeddah. Helped with my fish collecting in Jiddah
and became ~~an~~ an experienced handler of tubenose
and was successful, in obtaining several new species
while it took sick in Jeddah

Hassan Monsur contractor

Nasur

Richard H. Harup ostrich near Transjordan
Iraq-Saudi Arab border
1939 300 lbs. over, near 30 m.p.h., 9 ft. stride

George Rentz saw from saw fish at Al Khobar
4.7 1/4" 32 teeth both sides
5 1/8" width at base 2" at tip teeth 1 1/2"

Sunder Lal
Dr. 1 Hora Indian Museum, Bombay

Joe T. Smith ARAMCO c/o Al Kharj Agriculture Project
Dhahran, Saudi Arabia

RFD #4 Floydada, Texas

Mrs. James C. Stewart 611 West 112th St, New York
Colonial house

Cal

Esther Jackson

2123 Eye Washington 7, D.C.

REpublic - 2585

notes on exposure for Kodachrome film

sun $\frac{1}{50}$ sec. F12 (Schultz at Bikini)

for 35 mm. camera

overcast " " F8

extreme bright " " F16

Joe Wolhandler 306 3rd Ave. New York, N.Y. Oregon-3-2248

Mrs. H. R. P. Dickson Kuwait Oil Co., Kuwait

Dr. H. Blegvad, Danish Biological Station, Charlottenlund Slot
Charlottenlund, Denmark

Edith J. Goode, 2141 Wyoming Ave, N.W., Wash, D.C.

Maurer, 39 Exchange Street, New Haven

Joe Smith Hofhuf

Vincent Tyrrell Aranco scotchman interested in birds

Cecil B. Nelson, c/o American Eastern, New York
Morehead City, North Carolina sharks in Jidda.

Ahmed Muhsein, cook on the "Palestine"

Kempe name

Ibn Abdel Aziz Ibn Abdel Rahman Al Faisal Al Saud

Mr. Harrison, sister in law Mrs. ^{W.H.} Harrison works for Carnegie
in Washington

p. 186 "Inig
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Excerpts from references

Regan, C. T.

1905

"On Fishes from the Persian Gulf."

Journ. Bombay. Nat. Hist. Soc. vol. XVI, no. 2 p. 318 et seq.

new species

1. Hermichampus sidensis 1 spec. from Karachi

D-14, A-15, caudal forked, scales decid., 50-55 in longitudinal series
silver stripe on side. 188 m.m.

2. Apogon holotaenia 3 spec. from Muscat, 15-30 fath.

3. Apogon melanotaenia 9 spec. from Charbar, Mekran coast
+ from Karachi

4. A. spilurus 5 spec. Karachi

5. Apeogonichthys nudus 9 spec. Karachi

6. Cirrhitichthys callivrus 2 spec. Muscat

7. Platycephalus nigripinnis 1 spec. Muscat, 15-30 fath.

8. P. townsendi 2 spec. Karachi; Muscat

9. P. maculipinna (3) Muscat, 15-30 fath.

10. Lepidotrigla omanensis (3) Sea of Oman

11. Percis smithii (2) Muscat

12. Callionymus persicus (12) Persian Gulf, Mekran, Muscat

13. C. margaretae (2) Muscat

14. C. muscatensis (2) "

15. Blennius persicus (3) Persian Gulf

16. Salarias anomalus several from Persian Gulf + Mekran

17. Petroscirtes mekranensis (1) Jask, Mekran coast

18. P. townsendi (1) " "

also a list of 19 fish from 140-205 fath.
in Sea of Oman

and 35 fishes from Mus^cat and 57 species from the Persian Gulf, the following of which are not in Bleeker's book

1. Epinephelus argus Bl. Sch.
2. E. fuscoguttatus Forsk.
3. E. merri Bloch.
4. Anthias townsendi Blgr
5. A. hypselosoma Blkr.
6. Apogon quadrfasciatus Val.
7. A. bifasciatus Rüpp.
8. A. nigripinnis C.V.
9. Mesoprius annularis C.V.
10. M. erthropterus Bl.
11. Lethrinus striatus Stdr.
12. Scorpaenopsis ghanam Forsk
13. Pseudochromis persicus Blgr.
14. P. nigrovittatus "
15. Teuthis nebulosus G & G
16. Pomacentrus obtusirostris Gunther
17. Glyphidodon sindensis Day
18. G. coelestinus C.V.
19. Platygllossus (Halichoeres) hyrtelii Blkr.
20. P. roseus Day
21. P. dussumieri C.V.
22. Pseudoscarus jantachir Blkr.
23. Scorpaena cirrhosa Thunb.
24. Gobius ophthalmotaenia Blkr.
25. G. townsendi Blgr.
26. G. hoplopomus C.V.
27. Eleotris diadematus Rüpp

28. Synaptura zebra Bl.
29. Percis nebulosa Q & G.
30. Salarias sindensis Pay
31. S. dussumieri C. V.

31. S. dussumieri C. V.

32. P. 1. 4. 01

33. 5

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is synonymous to

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71

Pres

Serge

Arabia. By G. A. Boulenger.

42. *Serranus angularis*, C. & V.

43. S. *geoffroyi*, Klunz.

44. S. *morhu*, C. & V.

45. S. *praepercularis*, sp. n.

History. 6th or

from H. McKean Coast
gen. F.R.S. 420

of London, 1887
has obtained by
Muscat, East Coast of

JEDDAH JULY 28 1948

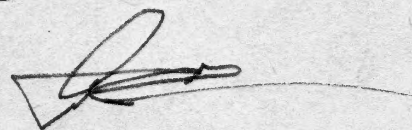
DEAR MR. ERDMAN:

THE NAME OF THE FISH OF WHICH YOU DREW SUCH A GOOD PICTURE
IS *selap* OR IN ENGLISH CHARACTERS TRANSCRIBED "SAMLOG".

ANY TIME I CAN BE OF HELP TO YOU IN MATTERS OF THIS SORT
I SHALL GLADLY OBLIGE.

SALAAMS

Sussein
Tahir

A stylized handwritten signature, possibly reading "S. Tahir", with a long horizontal line extending to the right.

Jeddah July 24 1948

Dear Mr. Don:

Thank you very much for sending me the nice letter. I hope that you are feeling much better now and that your sickspell is something in the past. I was really glad to be able to help you and so was Ali. We got a lot of fun out of it. Thanks once more for the little things you let me have. They may come in handy when I go fishing myself. Ali has quit and he will be going back to Yamen. I will take your advise and go to see Dr. Gonet but I am really feeling very much better myself.

When the pictures you took are developed, please send me a print of the one you took of me. And if it is not too much trouble will you please send me a little of that fish poison. I have seen some more different kinds of fish which you dont have yet. Also some large jack fish you were after. And when you are back in America, please see what you can do for me. It sounds good the way you talked about it. It would be a real opportunity for me to be able to visit the United States.

I hope that you will come back to Jeddah. If so, I will be glad to help you again.

Salaams from your

Assistant Hussein

W. O. L. W.

July 20, 1948

Dear Hussein

I hope you will be able to find out
the name of this snapper for me. You
may remember you ate some of them which
we caught at Bahat Ashra.

Yours
Sincerely

Thank you, very much
for your cooperation

You can give Mr. Campbell
the name to send on to me at Ras Tanura

Sincerely,
Don Erdman

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

WASHINGTON, D. C.

Spot snapper = ?

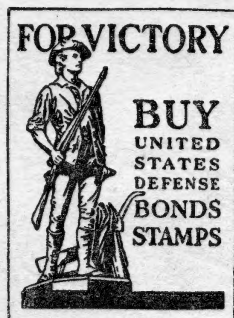
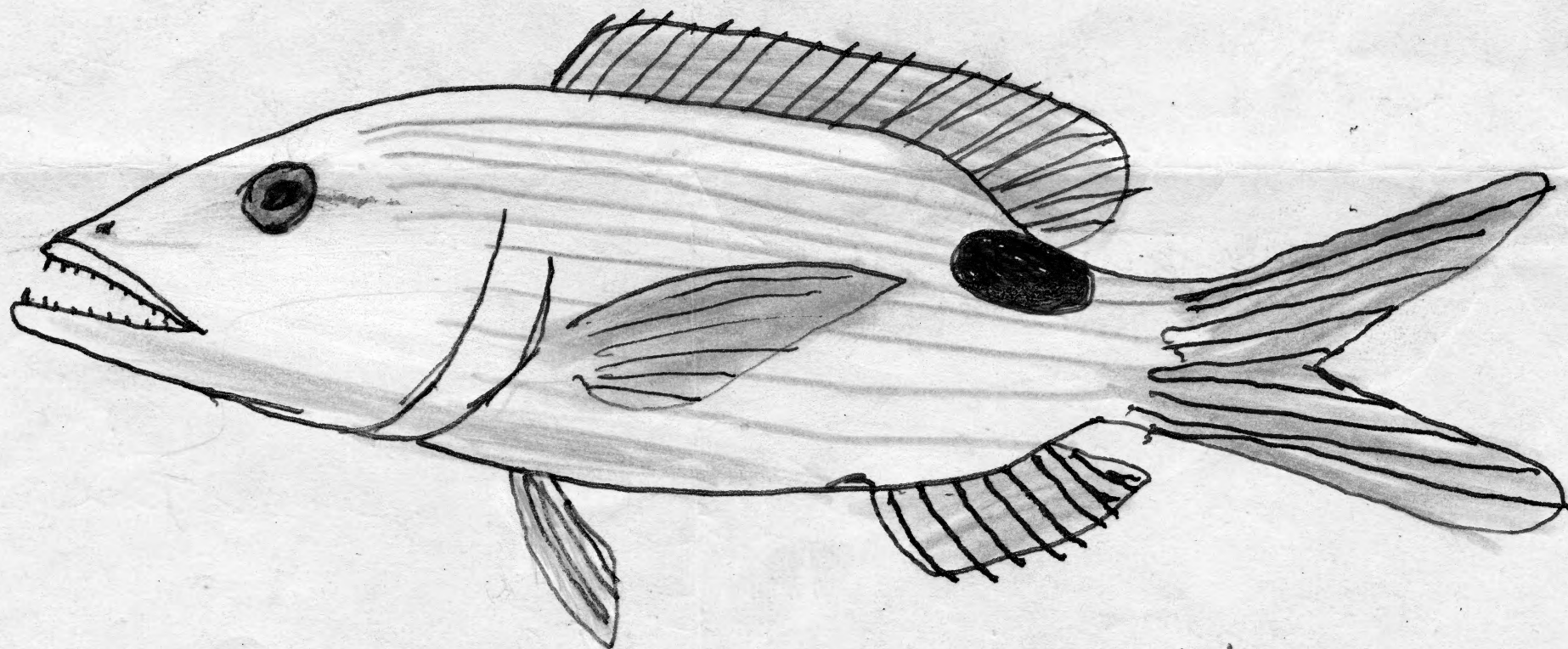
Lutjanus sp.

WASHINGTON, D. C. arabi
←

arabi
←

July 20th

Donald S. Erdman



صالح



۱۴ شعبان ۱۲۷۴ هـ الموافق ۱۸۵۷ م

اقدم سعدي عزيزي

تتمه مناسبت به عذقه افلاوي

المخلص



و ادعي الله ان يوفق بيني

وبيني وادع الله ان يوفق بيني

بيننا وادع الله ان يوفق بيني

سعيي له بلك الحمد

التي فيها



and 35 fishes from Muscat^c and 57 species from the Persian Gulf, the following of which are not in Bleeker's book

1. Epinephelus argus Bl. Sch.
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3. E. merra Bloch.
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11. Lethrinus striatus Stdr.
12. Scopelogadus ghanam Forsk
13. Pseudochromis persicus Blgr.
14. P. nigrovittatus "
15. Teuthis nebulosus Q + G
16. Pomacentrus obtusirostris Gunther
17. Glyphidodon sindensis Day
18. G. " coelestinus C.V.
19. Platygllossus (Halichoeres) hyrtelii Blkr.
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24. Gobius ophthalmotaenia Blkr.
25. G. townsendi Blgr.
26. G. hoplopomus C.V.
27. Eleotris diadematus Rüpp

28. Synaptura zebra Bl.
29. Percis nebulosa Q + G.
30. Salarias sindensis Day
31. S. dussumieri C.V.
32. S. fasciatus Bl.
33. S. opercularis Murr.
- 34. S. anomalus Regan
35. Petrascirtes barbatus Ptrs.
36. Antennarius nummifer Cuv
37. Monacanthus tomentosus L.
38. Ostracion cyanurus Rüpp

The other 19 in the list are equal or synonymous to species mentioned in Bleeker

Annals and Magazine of Natural History. G. H.
20, 1897

Article XIX. Description of the new fishes from G. Dubois' Cruise
Persia. By G. A. Boulenger, F.R.S. 420

- 39. Pseudochromis nigrovittatus.

40. Salarias curtus

41. S. phantasticus

Proceedings of the zoological society of London, 1887

p. 653-669 An account of the fishes obtained by
Lieutenant-Major A. J. Agakhan at Muscat, East Coast of
Arabia. By G. A. Boulenger.

42. Serranus angulatus, C. & V.

43. S. geoffroyi, Klunz.

44. S. nankai, C. & V.

45. S. praepetularis, sp. n.

46. *Serranus kinnickinnick*, Rüpp.
47. *S. gigas* (*gigas*), Rüpp.
48. *S. stoliczkae*, Day.
49. *S. gibbosus*, sp. n.
50. *Mesoprius tohar*, Forsk.
51. *M. rangus*, C. & V.
52. *M. subinflatus*, Forsk.
53. *M. chrysargus*, Bl.
54. *M. chitah*, C. & V.
55. *M. quinquelineatus*, Bl.
56. *M. lineolatus*, Rüpp.
57. *Genyoge bengalensis*, Bl.
58. *G. rivulata*, C. & V.
59. *Priacanthus boops*, Forsk.
60. *Ogogon annularis*, Rüpp.
61. *O. maximus*, sp. n.
62. *Chilodipterus lineatus*, Forsk.
63. *C. octonotatus*, C. & V.
64. *Odontonotus erythrogaster*, C. & V.
65. *Therapon jayma*, Forsk.
66. *Pristigaster hasta*, Bl.
67. *P. dussumieri*, C. & V.
68. *P. stridens*, Forsk.
69. *P. opercularis*, Playf.
70. *Diapomus griseus*, C. & V.
71. *D. gaterinus*, Forsk.
72. *D. punctatus*, C. & V.
73. *D. jayakari*, sp. n.
74. *Scolopsis caudatus*, Muraoka.
75. *S. bimaculatus*.

76. *Scolopsis imberbis*, Schleg.
77. *Synagris tolu*, C. & V.
78. *S. maculata*, Day.
79. *Cassio erythrinus*, C. & V.
80. *Aphareus rutilans*, C. & V.
81. *Serres acinaces*, Bl.
82. *Chaetodon collaris*, Bl.
83. *Chaetodon selene*, Bl.
84. *C. melanopterus*, Quoy.
85. *Holocanthus maculosus*, Forsk.
86. *H. imperator*, Bl.
87. *Mulloidops zeylonicus*, C. & V.
88. *Upeneus macronemus*, Lacép.
89. *U. cyclostoma* "
90. *dispilurus*, Playf.
91. *Sargus rondeletii*, var. *capensis*, Smith.
92. *Lethrinus longirostris*, Playf.
93. *L. mahsena*, Forsk.
94. *L. ramak*, Forsk.
95. *Pagellus affinis*, sp. n.
96. *Chrysophris bifasciata*, Forsk.
97. *C. hasta*, Bl. Schn.
98. *Pteris volitans*, Gm.
99. *P. lunulata*, Schleg.
100. *Teuthis javus*, L.
101. *Myripristis murdjan*, Forsk.
102. *Holocentrum rubrum*, Forsk.
103. *Polipremus plebejus*, Brouss.
104. *Umbra striata*, sp. n.
105. *Histiogobius gladius*, Brouss.

106. *Histiophorus* ^{brevirostris} *gladius*, Brocuss.
 107. *Acanthurus* *sokal*, Forsk.
 108. *Acanthurus* *nigrofuscus*, Forsk.
 109. *A.* *xanthurus*, Blyth.
 110. *Caranx* *ferdau*, Forsk.
 112. *Caranx* *fulvoguttatus*, Forsk.
 113. *C.* *auroguttatus*, C. & V.
 114. *C.* *helvolus*, Forst.
 115. *C.* *speciosus*, Forsk.
 116. *C.* *hippos*, L.
 117. *C.* *chrysophrys*, C. & V.
 118. *C.* *jayakari*, sp. n.
 119. *Seriolichthys* *bipinnulatus*, P. & G.
 120. *Chorinemus* ^{moadetta} ~~lipan~~, Forsk. C. & V.
 121. *Trachinotus* *oblongus*, C. & V.
 122. *Psettus* *argenteus*, L.
 123. *Platys* *repentilis*, L.
 124. *Platys* *tura*, Forsk.
 125. *Eggnula* *fasciata*, Linn.
 126. *Coryphaena* *hippurus*, L.
 127. *Scomber* *kanagarta*, Cuv.
 128. *S.* *janssabi*, Blkr.
 129. *Thynnus* *thynnus*, L.
 130. *T.* *thunnina*, C. & V.
 131. *T.* *pelamys*, L.
 132. *Cybinus* *comersonii*, Lacép.
 133. *Percis* *nebulosa*, P. & G.
 137. *P.* *alboquittata*, Stehr.
 138. *Opisthognathus* *muscatensis*, sp. n.

136. *Platycephalus* *insidiator*
 137. *Trigla* *arabica*, sp. n.
 138. *Gobius* *jayakari*, sp. n.
 139. *Sebastes* *tridactylus*, Bl. Schn.
 140. *Sphyræna* *kenia*, K. Linn.
 141. *S.* *chrysotaenia*, K. Linn.
 142. *Atherina* *pinguis*, Lacép.
 143. *Trigla* *capitata*, Stehr.
 143a. *m.* *sepi*, Forsk.
 144. *Fistulana* *serrata*, Cuv.
 145. *Amphiprion* *scutatus*, L.
 146. *Amphiprion* *sebae*, Blkr.
 147. *A.* *clarkii*, Penn.
 148. *Glyptidodon* *coelestinus*, C. & V.
 149. *G.* *sordidus*, Rüpp.
 150. *Dascyllus* *trimaculatus*, Rüpp.
 151. *Halibetes* *opercularis*, Klapp.
 152. *Chelinus* *lineatus*, Rüpp.
 153. *Pseudocarus* *diccaumieri*, Blkr.
 154. *Pseudocarus* *guthriei*, Blkr.
 155. *Psettodes* *eramei*, Bl. Schn.
 156. *Pseudorhombus* *russellii*, Gray.
 157. *Pardachirus* *marmoratus*, Lacép.
 158. *Plotosus* *anguillaris*, Bl.
 159. *Arilus* *thalassinus*, Rüpp.
 160. *Saarus* *varius*, Lacép.
 161. *Saurida* *tuakel*, Bl.
 162. ^(Sauridodon) *Sauridodon* *muscatensis*, sp. n.
 163. *Cyprinodon* *dispar*, Rüpp.
 164. *Belone* *choram*, Forsk.

165. *Almichthys decessumieri*, C. & V.
166. *H. commercorii*, Cuv.
167. *Eporoctes evolans*, S.
168. *E. brachyoma*, Blks.
169. *Engraulis commercianus*, Lacép.
170. *Chaetodon nasus*, Bl.
171. *Clupea scottiana*, C. & V.
172. *C. venenosa*, C. & V.
173. *Elops saurus*, S.
174. *Chanos salmonicus*, Bl. Schn.
175. *Chirocentrus dorab*, Forst.
176. *Muraena undulata*, Lacép.
177. *Hippocampus guttulatus*, Cuv.
178. *Triacanthus strigilifer*, Cuv.
179. *Balistes macrolepis*, sp. n.
180. *B. niger*, Tring's Park.
181. *B. mitis*, Penn.
182. *B. anadi*, Forst.
183. *Monacanthus setifer*, Penn.
184. *Ostracion gibbosus*, S.
185. *O. cubicus*, S.
186. *O. cyanurus*, Blagg.
187. *O. cornutus*, S.
188. *Tetrodon stellatus*, Bl. Schn.
189. *T. lineatus*, S.
190. *Trygon uarnak*, Forst.

Lane, W. H. "The game fishes of the Persian Gulf"
 Journ. Bombay Nat. Hist. vol. XXV p. 121-135 1915-18
 not of much scientific interest except

p. 133 Tir-mukha - *Chanos salmonicus* "at certain seasons of the year the waters of the Persian Gulf are covered by extensive patches of dark red sargassum, about the origin of which there are several theories. In this sargassum, shoals of large tir-mukhas, up to 15 or 20 lbs in weight, are frequently observed. ... They swim about with their backs above water and mouths wide open."

Log Mar. 22nd 1948

I left La Guardia airport on the ARAMCO "Flying Camel" about 12 noon today. Mother, Dad, Peg, and Nat saw me off. The weather was clear and spring like with moderate winds.

Our first stop was Bandar, New Foundland, which we reached about 7 P.M. New Foundland was still covered with considerable snow, and there were great many evergreen forests. Part of Bandar Lake was frozen the other part open water. The temperature was probably in the thirties.

We saw a most beautiful deep red sunset, something like the Arctic sunsets you read about.

After a meal of or including salt cod, we went on to Portugal. I wrote a letter to Lucile and 1 to the folks.

It was a moonlight night and the clouds below us gave the appearance of great snow fields and icebergs on the ocean. It was not until later that I realized my error. We flew around 8⁰⁰⁰ to 10,000 ft. above sea level.

Mar. 23rd.

Portugal

We had a good clear sunrise today, and arrived at Lisbon (Lisboa) at 12 noon. Portugal was fair a beautiful from the plane with neat terraced fields, and bright green grass, and white washed houses with red tiled roofs.

After going thru customs, we piled on a bus about 30 of us, men, women, and babies, and drove thru Lisbon and 22 kilometers south to Estoril, on the coast. We stayed over night at the Monte Estoril Hotel which was very commodious with tall doors and high ceilings.

After lunch, Walter Sprague, my seat partner, and I walked around town a bit and down to the beach. Nearly every body has lovely gardens with vegetables and all sorts of flowers.

Palm trees, Pines (like red pines), and a kind of Eucalyptus? (long thin ovate leaves with bark something like sycamore) were present along.

It was really hot with the bright sun, and some people were swimming in the ocean. The ocean water was comparable in color to Long Island and had sand with black rocks interspersed.

I found black periwinkles (small), key hole limpets, and rock crabs (one about 1 inch long was flat and square with long legs like stone reef crabs in the west Indies. Green Elodea and a brown kind of bladderwrack were seen. The difference between low and high tide was considerable possibly eight feet. It was high about 3 p.m.

Portugal

11

In a park near the hotel, there was a cage full of love-birds, of varying colors some bright blue, some pink, yellow, or green.

Pigeons and English sparrows were abundant. I saw one yellow finch, and a number of dark swallows.

After a rest, Mr. Bidd joined us for a walk around to see the sunset, and a near full moon overhead. We went to the top of a hill thru a narrow street with many shoe shops on the way. We looked at the sea and the ship and a small woods from the hill top, and smelled the cool evening air. We heard a number of pretty bird songs.

For lunch we had real sole, "linguado", a fish about 14 inches long apparently boiled whole tho I did not see the head. It was thinner on the sides than a flounder the same length. I was not impressed with its preparation and it was without much flavor. It was probably a true Solea.

For supper we had "salmonete", large goatfish 12-14 inches with chin barbels, Upeneus or more likely Mullus, it was boiled whole but had excellent flavor including the meat in the head. It tasted something like Porto Rican Upeneus but was better, and did not have that characteristic unpleasant smell.

This evening, I wrote letters to the folks at Lucile and cards to the Woods, Tony Fenera,

Sunny, mild, & one other.

Mar 24. Wed. We got on the bus about 8:30 this morning and drove to the airport. It was more interesting because of the open markets, and peasant women walking with baskets on their heads. Many were barefoot, and a number fish peddlers. A number of tanks had 3 ft. long macrurid silver fish with long jaw like *Trachinotus* but a small mackerel like tail ~~like *Trachinotus*~~ I didn't get a close look at them. Others had snappers probably *Lutjanus*.

The trolleys in town are yellow and small like turnerville trolleys. The newer streets are broad, the old ones narrow and strictly one way. The cars honk their horns a lot, and there are policemen but no lights. The people are good looking as a whole and appear adequately fed. I liked Portugal a lot, my one criticism is that all the land is occupied and there appears to be no wild spots except possibly in the mountains in the background. The country is probably overpopulated.

We left about 10:30 A.M. Our flight over Spain was interesting; it is far more rugged hilly and mountainous than Portugal and it is far less green and appears dry and rather unproductive. Some of the mountains in southern Spain as we approached the Mediterranean, were snow capped. They were

probably 6,000 or so feet high.

The Mediterranean was blue as they say in books and had white caps from a stiff breeze in the eastern end. Our first view of Africa were the rugged Atlas mountains which come right to the coast. They are very barren looking.

We passed over northern Tunis about 3 p.m. and saw the coast of Sicily in the distance. We flew over Malta about 5 o'clock. It is a flat roundish island with two good harbors. It is cultivated and terraced to the hill with a number of large towns, and a catholic church in the center surrounded with a park of the island only trees. The island appeared definitely overpopulated.

We saw other small rocky barren isles off the coast of Africa which were uninhabited.

We crossed over Alexandria shortly after dark. It was well lighted up and is on a long narrow peninsula. We reached the Cairo airport about 12 midnight.

The airport smelled like a camel stable, though I saw no camels. The characters were varied in dress and appearance some in uniforms had fez, and others the cloth Arab head-dress.

We ate at the airport and continued about 1 A.M. flying over the desert and the Suez canal in bright moonlight.

The Arabian desert was hilly and gutted with

Mar. 25

deep valleys at first varying from reddish to almost pure white sand. Dawn finally came and there was a dusty orange sun rise with a dust haze over the desert. The desert was sandy with small hills and no apparent vegetation. We saw a couple of Bedouin camps with lights or fires. As we approached the Thabran airport there were a few widely scattered palm trees, and other weeds on the desert.

We reached Thabran about 8 A. M. and spent about 2 hours in customs while the Arabs satisfied their curiosity by looking thru our baggage.

I live at house #165 in Thabran in a room with Ed Gurley. I got settled with a shower and tried a little make with the house boy, and fell on the bed. Ed finally arrived and he appeared in good spirits, but has had his troubles with numerous red tays.

I met some friends of Ed's and Mr. Kerr who is interested in our project and in a position to help us. He asked me what my Ph.D. thesis was or whether I was studying for one or not hardly before I could get out any answers.

The air has a distinct dust taste to it, which I continue to notice. Yesterday they had a real shamal blowing here.

Mar 26 - I got up for breakfast early today. Ed had planned a car trip to ^{Al Khobar} Khobar on the coast the nearest town about 5 miles away.

15

We went down to the pier in a coupe, and looked over the dhows which were out the dock. They paint them with rags dipped in fish oil, and it seems to do a good job. The dhows have good lines but are very much jammed together.

Fish around the pier were small but abundant in numbers and there were several kinds. The water was bluish and fairly transparent. I saw fish that looked like herring, one snapper and a pomacentrid? and several batches of young fish. The bottom is mud and deepens very slowly. It is coolish still at night getting hot during the day.

Ed felt sick so we came back early. We drove thru the town, and saw the bazaars open with their bright colored caps and rugs. There were everywhere even all over the small children, and we saw some dried fish.

The people have large good looking shaggy black goats with long spaniel ears. They have some sad looking tan Brahmin cattle, and burros which look like burros. I haven't seen any camels yet.

The women all wear black veils over their faces up to the level of their eyes.

Friday is the Arab Sunday, so it is a day off today and all things are closed down.

This afternoon, Ed and I drove to Ras Tanura which was a most interesting drive. We drove over salt flats, by date palm orchards, and wells, and artesian springs. In one shallow

pond by the side of the road I noticed numerous Cyprinodon dispar with bands on their tails and some nearly 2' in length. There was some grass in the water and a brownish kind of alga. Over the other side of the road was a small stream going toward a date palm oasis. There were some more small minnows, and a small larval beetle which ran or swam along and would burrow in the sand. I had no containers and no preservative, since all of such is still at the customs. The sand beetle was the color of the sand, save for black eyes.

On the Ras Tanura pier in about 10 feet of water there was considerable current with numerous 8 to 12 inch half beaks. Arabs were catching them with very small hooks on light lines which they baited with half beaks. By jerking the line occasionally the motion would make the fish strike. Sila? is the local name. ^{also there were} small bumpers.

Mar. 27 - Today I went thru what is known as "processing". We were given forms to fill out, and it included one of how we wanted to be buried etc. Ray Carlson gave us an idea of the history of the place which was interesting. I also met Dr. Leggy, the entomologist, after my physical exam. He told of an oasis to the north where there might be good collecting; so it is possible that it may get down, but rather doubtful. Little progress was made for our field work.

Mar. 28 - Another day of rounds with Ed. Burley meeting various of the big wigs, I was called

down to customs, but he was there (I mean the right "he").

We stopped at the camp fish house which is just a three sided cement hut on the edge of the desert, and Arabs and coolies were chacking fish into piddets. All the fish were over 5 lbs and there must have been close to a ton of fish. There were 5 species in all: a greyish black grouper (subati), a grouper red spots (kamur), Lethrinus with yellow stripes or lines (shiar), a large bluish pink porgy with a hump on top of the head before the dorsal spines ^(Thup) and a pink large porgy without a hump (bege-r). The spotted groupers, some had large gonads with near ripe ova. The place was hardly what might be called sanitary, and fish was wasted.



Note - Mar 27 - This evening, Burley and I went down to the pier at Al Khobar to see what fish were there. An Arab gave us our first fish a Pranias impaled on a pronged spear. The water was oily, so we only got one pipefish, and several young mappers, a dead mullet, etc. The collection is U-48-1.

Mar. 29 - Another day of disappointment but with some distant rays of hope. Burley took me to see Osliger and Davies, two of the top men, and we had a pleasant conversation, but that as far as it went. Another trip to Al Khobar proved nothing had been done on the boat, so Burley got action by calling Davies. I filled out 2 forms for expense account. The afternoon, I spent over in

the relation division library and with the help of Miss Peterson ran across several interesting books.

Villiers, Alan "Sons of Sinbad" Scribners, 1940
an interesting account of sailing in Arab dhows
and an interesting chapter on the dreadful life
of pearl divers in the Persian Gulf.

Twitchell, K.S. - "Saudi Arabia" 1947 Princeton Univ. Press
chapter on Dhahran with numerous photographs.

Prothero, G.W. Persian Gulf (handbook) 1920

Climate, weather, geography hardest 24 hours in
April

Rihani - "Around the coast of Arabia" Houghton
Mifflin, 1930, Boston p. 280 "dawl" a kind
of apparent jellyfish with 2 foot tentacles
decayed by pearl divers.

Mar. 30 - I accumulated some jars today from
Joe Martin at the dining hall, and alcohol and
formalin from Bill Moyer at the clinic lab.

No dice on my stuff at customs, and the day
was generally frustrating. Tonight we heard
an Italian orchestra, and a meeting of the
entertainment committee wanting information
on how to spend its \$30,000. I finished
a letter to Lucile, and it was not a very happy
one.

Mar. 31 - I straightened out the ship's ledger
with the commissary, today Mr. Shea, and got
one jar from the Club.

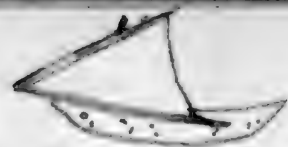
This afternoon, I drove in a pickup up to
Ras Tanura, and stopped by the side of the

same pond on the right side of the road near Safwah
and collected some pond weed, Cyprinodon diopas,
2 frogs, and a pollywog. The bottom was muddy and
all the bushes were up at the windward end in the
belly of the sand. I found no burrowing tan beetles
on the other side; they had disappeared. I also
collected a number of snails. I saw a dragon fly
larva, and a bright blue dragonfly, and got a dead
beetle. This collection U-48-2.

On the Gulf side about half way out to Ras
Tanura there were 2 similar salt water sand
pools about 40 feet long and 10 feet wide and
may be 4 feet at its deepest, one was larger
than the other. I got 2 species of Lutjanoid
young fishes, by attracting them into the net. This
makes collection U-48-3. The fish were just the
color of the sand except for their black eyes.

April 1 - I got my things out of lock from the
customs today. They were at the storeroom. I also got a
hold of a few more small jars. This afternoon
was used up in getting oil drums and barrels
to be fixed for fishes. This evening the wind
came up and it seemed cold out. I watched
the dance in the patio, and actually went back
for my overcoat.

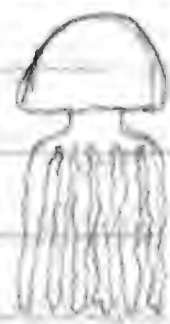
April 2 - Gurley intended to go to Bahrain
today but a strong shamal took care of that.
I had somewhat of a cold and spent the day
reading the "Sons of Sinbad"; according to the author Arabs
use coral rock, lime, and mud to make their houses.



Apr. 3 - We were to go to Bahrain at 9:00 A.M., and finally left at 1:30 P.M. Two launches broke down and we got picked up by a motored dhow with riabs, and reached Manama, Bahrain, about 6:00 P.M.

There were over 50 sailing dhows in the harbor, as we entered (an impressive sight).

On the way over I counted over 300 bell shaped grey opaque jellyfish with bells up to 8" in diameter. The tentacles were stoutish about a foot long and often a bright blue purple. They were fairly well spread out over the open gulf water.



Fog/dole or
jeddah

This evening, Ed and I drove around Bahrain and out of town to a date garden with a fresh pool where boys were swimming and could dive for "bahseesh". We also talked to Mr. Kanoo who owned our dhow, and he consented to our drilling holes in the deck. This evening after getting set up in the coffee house we drove to Owlli to see the Babes set up, and we met some interesting English fellows: Jerry Smith, an artist, Morris Hays, a doctor, and Bing Ford, an undertaker (a friend of Bill Lohman who went with us). Mr. Chub had no telephone so I did not call him.

The water of the Persian Gulf is quite a clear blue with varied sand and coral and some seaweed bottom. There was considerable sargassum like weed floating in spots.

Apr. 4th - I woke up with a worse cold this morning, but did manage to stagger around a bit to see the town in the morning. I went to a local market and saw dried fish including

1 foot mullets, small siganids, small gerres, small carangids like *Oligoplites*, and sardine like herrings.

I walked along the wharf and watched men working on their dhows, and donkeys and carts bringing in coral sand way out on the flats. There is quite a bit of sea weed brown in color, and also what looks like true *Ulva* (bright green in color). The tide differential appears to be great because the bottom deepens very gradually.

This afternoon we left Manama about 2:30 P.M. in a launch and we reached Al Khobar about 5:30 P.M. In spots there were large rafts of sargassum like weed.

Apr. 5th - I chased around all day today getting equipment together for the boat like fish barrels, etc. I felt completely miserable with a cold.

Apr. 6th - Still utterly miserable, but I got all the food for us and the Arabs today, and cleared their customs.

Apr. 7th - Miserable with the cold still, a shamal of sand outside, I checked on a few items, and spent most of the day on my bed.

Apr. 8 - Miserable, I managed to get some more equipment for the boat, and with the help of Mr. Bruchard I got a couple of crab nets made with 2 hoe handles and stiff wire for hoops. I made up one net with some of Burleg's fish line.

Apr. 9 - I made up another crab net today

and coughed my head off. This I saw a flock of interesting birds (Robin sized) with yellow orange throat, long wide bills, needle pointed tails, and a call like the wind whistle thru a reed. There were about 50 of them near the club house.

I also collected some moths and tiny flying ants from the window in our "boracuity."

April 10th - I took anchors and some of my stuff down to the boat, and got the crew to help me make an eel pot. We also loaded on our row-boat with its two bottom observation windows. I saw two sailing dhows with long white thin twine nets with leads and bobs like gill nets only with rather smaller mesh.

" Mrs. H. P. P. Dickson's list of reptiles of Kuwait.

1. Agama jayakari Black or blue throated lizard
Sand dunes west of Abu Haddriyah 6/5/47
2. Phrynocephalus maculatus Lizard with black tail caught by
T. Banger. Edge of Half moon bay 40k
west of Dharan 25/3/47
3. Acanthodactylus scutellatus small lizard, grey, with black
and brown mottlings
Tarik wells, Kuwait "Sahleba"
4. Acanthodactylus bockianus asper small lizard with a longer
tail & toe & dark & light brown markings
Jawad Khan, Saudi-Arabia 14/1/47
5. Eremias brevirostris Small similar to above two
6. Scincus philbyi "Damus" 40m. W. of Hofuf, Saudi-Arabia
7. Mayuba arcata dark shiny horizontal striped lizard
8. Varanus gisensis large monitor lizard "Woral" Kuwait

snakes
Coluber ventromaculatus non-venomous
Aspis cerastes Horned viper
Echis coloratus saw scaled viper

Apr. 11 - We didn't go today still more delays and running around picking up odds and ends.

Apr. 12 - We couldn't go today because the liaison office hasn't got our clearance, and our water tanks also needed fixing.

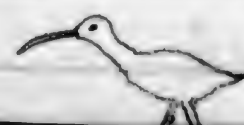
This afternoon, I went 2 Km. south of Al Khobar and made a small collection at ebb tide from near shore on mud sand with pieces of weird shaped coral rock (many were overgrown with barnacles) and these rocks were dark brown in color and had one to five or six crabs underneath all of them. I saw one light brown thick small eel 3-4". Other fish were small porgies which took refuge under the rocks (11 were collected) and 1 pipefish which drifted into the net, and numerous killifish up to 2" which resembled E. majalis in sand color and markings, but were considerably more elongate, than the fresh water Cyprinodon dispar.


These, however, were C. dispar as later ascertained



Apr. 13 - No good news today. We had a shamal & some rain last night. This morning after checking on work on our water tanks, which were to be steamed, I went down to the boat and made up a second eel pot.

This afternoon, I saw a flock of curlews with curved bills just south of Al Khobar on the



flat. I went about a Km. below where I was yesterday. It was all flat mud sand flats with stranded very shallow ponds. As I walked bare-foot in these ponds fish or shrimps (the exact color of the sand) would dart back and forth. I caught a number of small gobies  with superior eyes like *Dactyloscopus* and a long united ventral fins. The mouth was definitely superior. I also got a number of young *Platycephalus* ($\frac{1}{2}$ - 1" t.l.). Sand colored shrimp, ghost crabs, hermit crabs, snails were abundant, also I saw a couple of anemones, and collected one.

Note: from time to time as a couple of days ago I have seen Chanard *Leontismus* ^{comersoni} with brown bands like the Australian species and rather elongate like the kingfish brought to the dock by trolling parties.

Apr. 14, 1948 - This morning, I rescued the cook's belongings from our boat, since our quarters did not appeal to him. I also handled my laundry.

This afternoon, I took a trip along the shore as far as Saibut, and noticed many fish traps of date palm fronds along the way. Just south of Samam, I collected a *Therapon* in a drainage ditch from a date garden. The water tasted fresh and was about $\frac{1}{4}$ mile from the Gulf or less. Cyprinodonts were also present. The *therapons* varied from $1\frac{1}{2}$ - 4 inches and were rapidly swimming back and forth. I caught one with the help of an Arab who was passing by.


I saw one more curlew, a turnstone, several


flowers (just like semi-palmated plovers), and sand-pipers like the semi-palmated with longish bills and non-descript plumage. Just near al Khobar I saw a grey and white hawk like a goshawk.

I met an Arab contractor Abdul Latif Almansa, a contractor, who was in a truck that failed to go into high gear. He was bound for Qatif, and I gave him a ride there and sat in a tent on the desert while he wrote out some letters for his time keeper. He lives temporarily in al Khobar, but his home is in Basra. Arabs on the whole takes things as they come, "in sha Allah"; rather than rush around as Americans do; the contrast was rather a relaxation for me.

The *Therapons* had bronze yellow coloring on top and white silver below with the black stripes, a striking color combination. Collection V-48-6


Apr. 15 - Today I talked with Mary Leonardini, the school teacher, and she wanted me to lecture sometime to the gang, and also the children. This afternoon, I took Philip Brown, a sixteen year old, with me and we collected in the same spot as yesterday for *Therapon*, and two new places for *Cyprinodon* dispar at a trackish overflow well near the shore south of Dammam and another flat marsh about 1 Km. further south. I also got young mullet in the well overflow (a pipe growing out water from the ground). Philip is a nice fellow and a good help. This evening, I went down to the Khobar pier and with the help of Chuck Mead got a few fish (scud, pipit, halfbeak, a *Brassia*).

Apr. 16 - We at last got started today with breakfast at 5:15 A.M., and leaving the dock at Al Khobar about 6:30. We reached Ras Tanura about 12 noon, and touched moderate north winds all the way. There was a rather cloudy sky most of the trip and it was cool. One of our guests got seasick. We saw several porpoises, cormorants, gull, terns, and birds like petrels black and white with small bills (half more the size of shearwaters). We trolled 2 lines most of the way with spoons or jigs and got a couple of strikes according to Garley. He had different size leads also and about 100 feet of line trolling. We stayed at the west pier at Ras Tanura. There were a great number of fishes to be seen.  grey with orange and black stripes, black pseudochromids, *Abudefduf marginatus*, black pomacentrids, greenish wrasse in and around the wharf dock stones also a pomacentrid with yellow spots on dark. On the bottom were goatfish, gobies, and paraperids? Subatis, spotted Hamur, scads 2 kinds, mullets, black tip & white tip, barracuda (1'-15"), and a large puffer, all in fairly shallow water. *Attetrids* were also present. A man came in with a banded *Scomberomorus* from trolling.

The beach is used as an outdoor toilet so collecting along there is unpleasant. The bottom is mostly sand with scattered short green beds enormous 1 foot in diameter; some small brain coral, and brown sponge like finger coral . There is some soft coral or sand rock along the shore with lots of crabs under the rocks. Eel pot coll. V-48-9

Apr. 17 - One of the crew speared a couple of cuttlefish they are brownish with a light blue border around their edge, they are not nearly as active as squid, and their bones will float as soon as they are removed. Actual observation of living specimens at night proved that they were quite rapid in movement when they chose to. This morning was very hot and sunny, and in a very short time I got a burn which I felt the next day. The crew caught 3 Hamur (1 possibly 4 lbs) *Epinephelus taurina*? We ate one for supper. I took a photo of one. Native carpenters finally came aboard today and the way one stood on top of the plywood over the open hatch working furiously at the big saw with both hands and close to his bare feet was a sight for a circus.

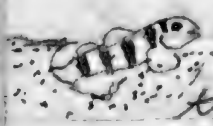
This evening, I walked over to the west pier and watched large schools of scads feeding at the surface, and also a large flock of small gulls with longish bills swimming on top pecking at the same water from time to time. I also saw a ^{Pteropoda?} Ray on the sand; one with wide wing spread & no tail. Around the dock rocks on the lee side I also saw *Abudefduf marginatus*. Natives were fishing for half-beaks but were not catching many. They were using small hooks & lines.

We tried a 100 watt bulb light over the side tonight and even in competition with wharf light; it attracted a great number of larval fish & small bright blue dussumierids (I caught two of them) and one sea snake. Another larger sea snake, a fellow speared for us. The one I netted was going head on; he started to swim backwards but it was too late. They are more sluggish on land than in the water. They both had wide  black bands on a sand colored background, and had the typical rounded & flattened tail. The small snake was in the process of shedding his old skin, which may have made it easier to catch him in the net.

Apr. 18 - Partly cloudy and cool in morning with light shamal, clear-

ing at noon with strong winds. Yunif pointed me out a "dawl" dawl or whatever an opaque jellyfish with a dark brown lower border & long tentacles. This is supposed to be the brown bad biting variety. Off the front of the dock, I think I saw a school of siganids under a barge. I am still catching stuff with my eel pot. We went over to the south side of the dock today because the wind was north. There was a lot of oil on the water so night fishing with the light was non productive. More carpentry went on on the boat.

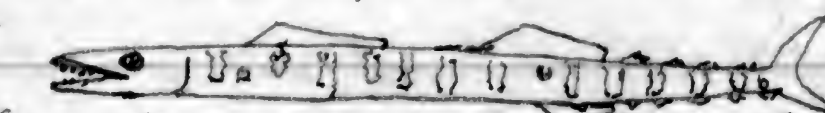
Apr. 19 - It was calm this morning and we moved back to the north side of the dock. I took a row to the north along the shore and picked up 3 black sea cucumbers about 10" long. I cut them open but there was no *Tieraspora* inside. There are holes in the sand with banded gobies I think, one at each entrance.

 I guess poison is the only way that I could catch them. Some finger coral heads are about 3 or 4 feet in diameter, and others smaller, a brain coral a foot in diameter is large for here. All the live coral is 5 to 10 ft. below the surface at ~~low~~ tide. This evening, we went offshore and tied up to a barge in 5 fathoms of water, about 250 yds offshore and 4 to 500 yds from the dock. We fished with the light (100 watts over the side). I used the crab net with bobbinetting in place and a lift up hoop net when the tide was slack. We saw several sea snakes like the others, and one small pink squid. Some small blue *atthemids* were at the surface with larger ones below (greyish in color). Herring shot up from below from time to time and got caught when they dove into the hoop net. Otherwise I never knew they were there. I saw several edible sized blue crabs with mottled brown or white all ~~to~~ with grey eggs, we caught one. Also we saw several white things swimming backwards by heels.



29
We thought they were cuttlefish but I finally landed one and it went bang bang on the roof deck. It turned out to be a mole lobster, V-48-11, with eggs. A couple of bill fish came in sight and I almost got one. I saw one edible sized *strepseus*, and several smaller ones with long red antennae.

Apr. 20th - Another wasted day in port, but the radio finally got fixed. The wind was strong from the south all day with a lull at sunset but increasing after dark with such a roll that we had to come into dock and sleep with the flies. Night light fishing was impossible because of the roll of the boat and oil on the water. I got a few fish in the eel pot, but that was all for the day. I also finished a letter to Inaile.

Apr. 21 - Calm at dawn with increasing south easterly winds. We floundered around most of the morning. Dunley had to go to the bank, Stewart to the clinic. And the crew had forgotten to get water aboard for themselves. The flies are thicker than ever. I set my eel pots away from the dock about 100 yards, and was rewarded with a much larger catch of small fishes in a short time than at the dock. Surprisingly we got started on our survey at 12:25 and headed for Saihat. There was a fair breeze from the south east, but we had a good trip. We caught two *chanad*, about 17-18 inches; one had a small herring in it.  They had only 6-7 gill rakers, and not many teeth. We ate the two which were not saved for specimens. Dunley saw several flying fish. There is considerable shoal water between Ras Tanara and Saihat, but the water was not clear enough to determine the types of growth on the bottom. We anchored a mile east of shore in one fathom of water with that fine silt sand bottom which acts like mud but is not. I nearly lost the eel pot by fishing there here. I caught four *Terrapon* 2 kept as specimens,


and 3 mottled blue crabs. There were a number of old jalboats stranded on the beach which would make a good picture. We finally obtained permission to go into the town, and we looked at some throw nets and the different fishes in the market place which consisted of porgies, band head porgies, jolt heads, Teraponids, Lethrinids, ^{Dorosomidae} ~~Chanos~~, sardines, one 2 foot scarus (like Blegvads), sea breams, ^{1/2} beaks, parapercids, seriola, Remipterus, sillago, leather jackets, Plectorhynchus or Kyphosus small, geroids. They were all partly dried and one subati (Sparus curiei had dried fins) and were stinking and covered with flies. There was a big rain storm tonight, and one early the next morning, and we had quite a row against a head wind to get out to the boat.

Apr. 22 - Our light plant shorted last night after the electric storm and rain, so we are headed back to Ras Tanura. At 8:35 A.M. we caught a chanad on a jig. I saw a small flying fish with darkish wing white tips and greenish back like the shallow Gulf water. About as soon as we hit the dock the flies came aboard in droves at Ras Tanura. The chanad had only four gill rakers on each arch. It was 795 mm. s.l. and had mature milt and testes which could be pressed to exude milt. There were also only a few teeth, and it had a large shrimp in its stomach. Abdullah and I set a big wire fish pot by a buoy baited with mackerel heads. I also set my eel pots several times and by finger coral headpad caught much the same stuff as yesterday.

No cloudy and calm in the morning it continued calm but sunny in the afternoon, when we caught a small mackerel, U-48-15, on our way back to Saihat, after we had the wiring redone. I also had 2 small barrels prepared with formalin & water. Our big trap only yielded 3 fish, 2 scolopsis and 1 Lethrinid; it was set at a barge buoy at Ras Tanura. This evening it rained and was very windy

at our anchorage at Saihat. I managed to catch 3 small halfbeaks with the hundred watt lamp U-48-16. During the night the tide went out and we rested half in water & half in mud with hard changing winds.

Apr. 23 - Cloudy and calm in the morning, with increasing East by South strong winds and white caps. This morning, I netted drifting gulf weed into the boat at Saihat and got one two inch scorpaeid, U-48-17, and several crustacea mostly shrimp and small elongate oysters.

After breakfast, we headed up Tarat Bay to El Qatif. The captain and two hands went ashore with the customs officer, and we spent the day at anchor between a sandbar and El Qatif in about 1 fathom of water. I explored the sand bar on an outgoing tide and caught 2 small mullet, and a number of crabs several burrowing kinds. There were terns and sandpipers also on the bar. U-48-18. I also got some snails. Both El Qatif & Tarat Id. are well covered with date palms and hardly look like desert shores. ^{ee}Dahrin, a town at the east end of Tarat Id. is opposite a round fortress about half way between Tarat Id. & the mainland  It is round small made out of stone with about a dozen black cormorants on top. I collected numerous larval fishes under the Gulf weed floating on the outgoing tide U-48-18a. Some were recognizable brown blennies which was interesting, probably specific to that weed when it was on bottom. I lost an eel pot when the line broke and caught nothing in the eel pot or in a large trap. The bottom had some thin dark brown weed otherwise it was much sand with no visibility or clarity. Larger clumps of weed (1 foot in diameter or so) had anywhere from 2 to 6 larval fish underneath. I saw 2 porpoises in that shallow water.

We anchored for the night about a mile WSW of ^{ee}Dahrin on Tarat Id. We pitched and tossed and rolled to a hard south wind till about 2 A.M., when it slackened. It was one night before full moon and the moon was very bright. No fishing was done.

Apr. 24 - Fairly clear and calm in the early morning with increasing north channel the rest of the day. We struggled up wind to El Batif again. Gurley went ashore to Shahrhan to get a stronger boat. With no boat in the morning, I could not collect but wrote up my notes and packed fish, and slept a bit to make up for last night. In the afternoon, I went ashore with Abdullah to operate the cast net but it was strange to him. Yusuf knew a little more, and I finally improved to the point where I got one good cast. Yusuf caught a porgy and I got one mullet near the sand island where I collected yesterday. The evening was cool with continued north channel and cloudy skies.

Apr. 25 - About 2 A.M. I got up with a sore head and a stiff neck and found the row boat on the sand bar high and dry and the stern of the Palestine hard on the beach, meaning that it was almost standing on my head in the bank. It was calm most of the night and early morning. We left for Ras Tanura at 7:30 A.M. with sun and fair north winds. At 9:25 A.M.

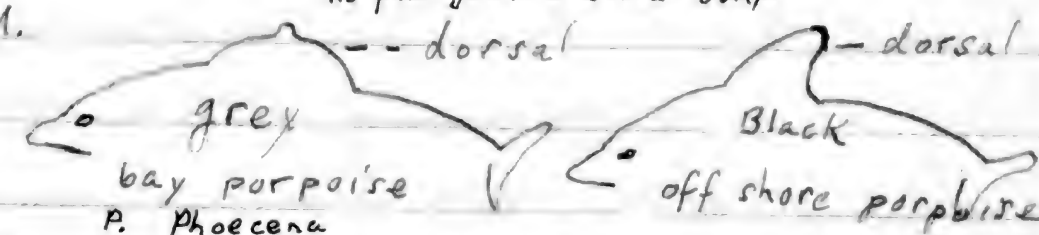
about 2 miles off Ras Tanura we caught a chanad on a silver spoon. It weighed $2\frac{1}{2}$ lbs. and 580 m.m. It was an immature female with a large shrimp in its stomach. It also had white worm parasites in the intestine and flesh (several were preserved). We arrived at 9:45 A.M. The fish was given to the crew. Last evening, I saw a large heron flying over us like a great blue heron. I have a case of the runs today. Stewart had a bad case yesterday. The macherel had 7 gill rakes in the right arch and 5 in the left. The day was completely wasted with the flies at Ras Tanura; Gurley did not get back from Shahrhan until mid afternoon. 2 letters from Lucile and one from the folks were all to cheer a bleak day. Jim and I went into Ras Tanura for supper and the movies to get a change.

Apr. 26 - A fire with our damn white gas stove greeted us at 6:00 A.M.; so I left a note for Gurley to get a kerosene stove.

6:30 A.M. We left Ras Tanura under way due SE with light swells and light NW winds. Several porpoises cited on Ras Tanura point and one about 7:20 at sea. Also a silver fish 3 ft or so long I saw jump out of water, it was ~~an~~ mackerel shaped. A flock of several hundred gulls and terns cited due north several hundred yards at 7:40 A.M.


Clear day without clouds.


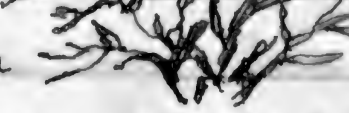
Red & white ^{py} and silver spoon

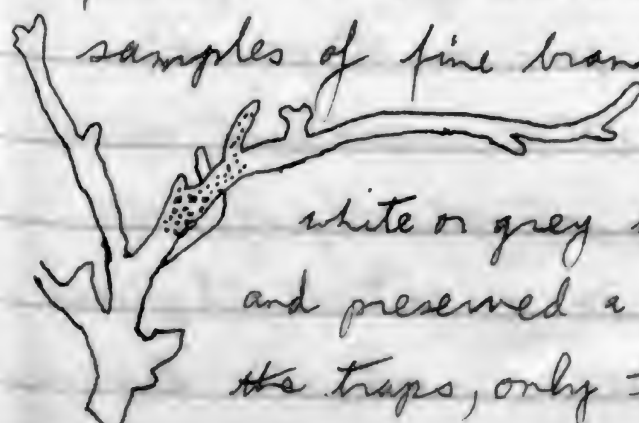


we dragged overboard from Ras Tanura. 7:50 A.M. Small fish cutting the surface about 20 yds astern; a small school possibly being chased by larger fish. Arrived at fishing spot 7:55 3 fathoms of water, sand & rock bottom about 8 miles S.E. of Ras Tanura, Najwa

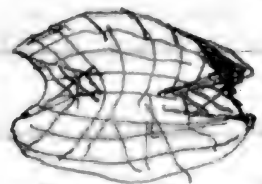
Large wire traps baited with "Tom" (dried sardines) at 8:30, 8:45, 9:00, 9:10 + 2 eel pots, 9:20, 9:35. The water depth was 3 - 4 fathoms where traps were set. Finely branched coral or possibly some other stuff was growing in large patches on the bottom. It was dark brown in color. The water was blue and quite clear.

Terns with black caps and brown wings  sat in pairs on our bays. They were similar in color to the sooty tern. Hadji Hassan, our captain, calls this place "Najwa" and it is so marked on the chart. It is pronounced Nagwa.

Some of the bottom stuff looked too fine for coral  and may be a type of plant life, "chin" seaweed or  a relative of the sea fans. With Abdullah I dragged over the bottom and got several samples of fine branched coral which is dark brown when alive. The coral becomes light brown in color when dying

 white or grey when dead. I took photos of some specimens and preserved a few pieces. At 1:15 P.M. we collected the traps, only the one with the macherel heads caught any

fish (5 small *Lethrinids*), and 1 green wrasse in the ed pot. The dried herring does not seem much good for bait. The traps are large and clumsy, and not as good as the native ones. These are large made of chicken wire and concrete iron rods, and are not as good as the others. We left for Ras Tanura



about 2:15. It was calm and overcast when we hauled the traps but the wind freshened and the sky cleared as we got under way. At 2:30 & 2:33, 2 chanad were brought aboard one on a red & white jig, the other on a silver spoon. At 3:40 P.M. we caught a *Shanad* which I kept as a specimen U-48-23. We soon after arrived at Ras Tanura west pier and all the flies duly boarded our boat. Ed appeared and a butane gas stove was soon installed and more supplies brought aboard. Jim and I ate in town partly to get away from the flies. The night was very calm and we used the light off the boat at a barge some 600 yds. north of the dock, U-48-24. *Tussimierids*, herring, *attherinids*, were caught, and a few half-beaks, some gars, and other larger fish were present from time to time. The water was clear and the tide ebbing fast.

Apr. 27 - Glass calm this morning early with a bright hot sun. We loaded north along Ras Tanura up Tarut Bay to Shmayly Id. a small sand island with sand hummocks covered with fleshy poor grass green & red in color. The isle (means "small northerly") 1/4 mile long by 200 yds wide about 6 ft. elevation. Abdullah and I caught 2 sand lizards, and Abdullah & Burley did collecting with the 15' seine on sand bottom on the north side. Large *Edispa* and small mullet were most abundant. Some few small gerres, baby sillagos?, 1 *Platycephalus*, all sand colored. At the northwest corner of the isle there is great hole black reef rock, at the edge of which are numerous porgy; "sbati" *Sargus* nest with spots on the tail etc. I picked up a skeleton of a band headed porgy. There was a considerable tide rip

at the north tip with a channel. This afternoon, we watched two native fishermen wash their palm stick stake traps. They go right into the trap box which is most closely woven and ~~use~~ ^{use} a ~~half~~ ^{one} inch stretched mesh scoop net 2' by 3' with a stick at either end and one man wades around chasing the fish into the corners, and scooping them up that way. Out of the two traps on the south side of Shmayly Id. they got a possibly total 30 lbs. But it was just a day catch and was mostly sardines, a few *Chirocentrus* doral, 2 puffers, U-48-26, a leatherjacket, a seriola, and several sea breams. The bottom at the south corner of Shmayly Id. was overgrown with long brown gulf weed which was rooted to the bottom. I caught 1 *Stenopus* ~~the~~ which was like the ones caught under the drifting weed at El Gatif.

There was considerable tide around most of the island. This evening I fished by night light from the side and caught 3 gar with the lift hoop net, + silversides and small herring.

Apr. 28 - By radio message this morning we were ordered back to Shahrhan for a conference on Apr. 29th; so another several days fishing was completely destroyed so far as I am concerned. We did a little trolling in the morning and caught on shore out off Ras Tanura. We spent the whole afternoon getting to Shahrhan and even got held up by customs at the Ras Tanura west pier because of our bags. The air conditioning in the house seemed very cold in fact uncomfortable at Shahrhan.

Apr. 29th - We attended the conference which was almost entirely concerned with the final check for the fish pier plans. There was hardly any need for Stewart to be there and absolutely none for me. I wrote letters to the folks and Lucile. I was generally in an ugly mood. I went back to Ras Tanura on the 2:00 P.M. taxi, and got to the Palestine in time to do some evening trolling with some other fellows

One shark was caught. We passed the "Steel Seafarer" a reefer freighter from New York (arrived Apr. 25 left N.Y. about Apr. 3rd). I saw my museum boxes on barge C-34. All my efforts even going out to the freighter, and talking to the hands on west pier did not prevent the damn stuff from going to Al Khatar. It is supposed to return tonight, but I will be lucky if I ever see it again, what between Aranco & customs. Complete frustration and delay is the by-word of this place in all matters. It was calm and sultry tonight with cloudy skies and light southerly winds.

Apr. 30 - Calm around 6:00 A.M. with a sudden shamal springing up around 7 A.M. and continuing strong all morning. U-48-29 The crew collected 1 *Siganus*, 11 filefish etc. in the big fish trap for me. The fish, however, did not preserve well internally, so I cut out their guts. ^{Had al Lowhi} We headed for a sandy point about 2 miles north of Ras Tanura in Turut Bay where we anchored very close to shore and spent the day. I set the eel pots and got my first 2 small *Penaeus* which were a beautiful pale pink in color with silver below. The shamal continued strong all day with clearing skies in the afternoon. This evening we headed back to Ras Tanura to pick up Jim and Ed.

May 1 - Strong Shamal continued all day today with dust flying off the dock. We had some rewiring done on the boat by Mr. Evans and helpers. It was another frustrating day partly due to weather and partly due to general conditions. In the evening, we all headed to the same sandy Pt. and even the crew was happy. I set 2 eel pots and 1 large trap baited with 2 mole lobsters, and a couple of crabs and having caught the evening before. We fished with the light over the stern this evening and had the most bait fish around that I have seen any night yet including a large bunch of larval fish. *Atherinids*, *dussumierids*, and sardines were most common including several half beaks, mole lobsters, gub gubs, and numerous sea snakes

up to 3 feet long. They would slowly swim to the top and apparently gulp air and then swim down rapidly out of sight. I saw one all tied up in knots; may be he was catching a fish. They all appeared to be the same species as I have already caught sand colored with black bands on the little ones, and pale grey bands on the bigger ones. We must have seen at least 3 dozen snakes or more in the two or three hours we were fishing off the stern. The bottom appeared to be sand. It was about 3 fathoms of water and about 50 yds. from shore. I think part of the abundance of fish etc. was because we were on the lee side of a sand spit, and there was almost no tidal current. Hence catching fish was a lot easier. I saw one grey fish about a foot long, but did not get a good look at it. Ed Kurley caught a sooty tern roosting at night on the deck roof, I took a picture of both of them the next morning.

May 2nd - I got a hold of most of my stuff this afternoon which is all at the Ras-Tanura storehouse. Mr. Sanders helped me locate the stuff and we talked fish. It continued fair with strong shamal winds till late afternoon. I discovered a small toadfish in the eel pot but he was rotted, I had failed to see him among the oyster shells. I brought six boxes of my stuff aboard after Jim waged a successful talk with customs.

This evening we returned to the sandy point and had boiled mole lobster "Om al Rubyān" and fried sardines for supper. The 2 inch *dussumierids* had ripe eggs like the large *atherinids* of last night. The tide was faster and the crabs fewer, and the bait harder to get, but it was stick as last night, tho we were farther off shore. The wind quieted at sunset, coming up again after 10 p.m.

May 3 - We got going about 7:30 with light to fair shamal winds and went to Rahaima and talked with 3 fishermen in a boat

who had just worked 2 traps. We got some bait cuttlefish and gut gulls & several specimens, *Sillago*, 2 gerres, platycephalus, *Chanos*, & flatfish. 'Ali (Bu'Alwa) from Sanābis, Tarut Id. next to town of Tarut, fish contractor who sells fish to Ras Tanura and buys from these fishermen at Tarut.

At 8:30 A.M. we caught a shorad on a RSW miller jig about a mile north of west pier in Tarut Bay. Around 9:30 A.M. 5 large traps set at Had ar raml baited with crab & cuttlefish 1 fathom and about a 1/2 mile north of west pier. It is below iron pilings which are south of our former sand spit anchorage.

We spent the rest of the day in a bight just north of this sand spit. Our new captain Abdullah arrived and he proved himself to be an ardent fisherman, and he caught two porgies by set line from the shore into deep water near some rocks. He skinned a shrimp and used the tail on the hook with the hook hidden inside. I set my two eel pots in 2 fathoms of water on much sand bottom, and got paraperoids, *Terapons* and an apogonid the next day. I set a trammel net 1 to the shore in the same water the anchors tightened on the line and it sank; all I caught was a big shrimp, and jellyfish which are "Iwaithy" small with a messymop of stingers. This evening we used the light off the stern and got the usual mix of *herring*, *dussumierids*, *atherinids*, a few larval *herring*, and many small 2mm. ("Kentucky blue grass" green) bugs which turned blue grey in formalin the next day. We had one strong squall during the night according to Jim. We reined a sandbar and got shrimp, mullet, and tilapia.

May 4 - Clear with light breezes in the morning. The Captain caught a sbaiti 5 lbs., S.L. 48", T.L. 54"; imm. ♀ with one fish head in stomach possibly an *atherinid*. I took several pictures of it. The canines are like a mackerel but the molars are like the porgy. 9 A.M. The boys lifted 5 traps with specimens + 3 large groupers (smallest kept as specimen) largest 52 c.m. T.L., 5 lbs., large crab in stomach unripe ♀ *E. taurina*

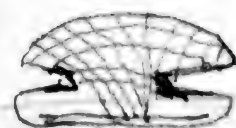
4 *Lethrinus nebulosus* & 1 *Scolopsis* (saved for bait). The one trap off Ras Tanura pier had one small blowfish kept as a specimen 448-39. We caught two mackerel east of Ras Tanura, and one large one just off west pier. The other two were caught 1/4 mile off shore between east pier & Rejma.

We reached buoy #7 about 12:30, and put over our drop lines. The weather was slightly overcast with very light breezes dying to a flat calm in the afternoon. There is about 6 1/2 fathoms at #7 with sand bottom. I had two small bites and lost it, then 10 minutes later I got a tremendous fish on the line which pulled then stopped and finally broke the line. It was probably either a large grouper or a catfish. Ahmed caught a gar just as we approached the buoy on a silver spoon. Abdullah caught an *Atherina* (3 ft.) on a bobber off the boat. The *Burley* came out later with a launch no other fish were caught. I saw a small *Scomber* 3 ft. mackerel or swordfish not far away, and a 5 ft. one at quite a distance. Considerable *Atherina* were swimming around in pairs or fours skimming the surface or jumping. I think I saw a barracuda but it may have been an *Atherina*. We saw small tuna or bonito playing around at the surface 5-10 lbs specimens, and a large school of smallish jacks 12-15 inches. Tiny fish were fairly abundant around bits of seaweed at the surface, I saw some 1 inch banded *Seriolas* but could not catch them; there were also some fry with large heads and tan color. I caught one very small banded pipefish. Pink aurelia jellyfish 6-8" in diameter were very common and there were also some "do!" The water was quite clear, and the gars and *Atherina* had a deep water blue and bright silver sides. There was not much noticeable tide. We used cut fish, some cuttlefish, and shrimp for bait. We caught quite a few shrimp in the seine last night. We also saw a couple of porpoises at buoy 7, cor-

morants, and sooty terns. We left about 7 P.M. and got into Tarut Bay about 9:00 P.M. Shortly later, bang a shamal hit and in split second light things started off into the bay, but we managed to save all.

May 5 - at dawn clear with some clouds and fair shamal wind. Two hours later we had dying breezes and later a flat calm. Our traps yielded very little except 3 fish. We met some fish pot fishermen in Tarut Bay up near Ras Tanara town 3 miles north of the point. They had about 20 fish pots, and 30 lbs. of small fish consisting of *Lethrinus*, *Sargus* moat, *Brachiodontes*, *Scolopsis*, etc. Another fish boat the one we got bait from yesterday had a 995 mm. guitar fish male light brown with white spots. They wanted 5 reals for it; it probably weighed 6 lbs. and is eaten. They also had a small barracuda in a debatable condition for $\frac{3}{4}$ of a real. They had sold their bait. Fishing seems to be rather thin right now. This was probably *Rhynchobatus djiddensis*. I had just used up my film at that point and did not have time to reload.

We tried to seine at Shmayly Id. at noon, but the sun was too hot and there were no fish. We went into the dock at 2:00 p.m. to get supplies and spent the afternoon there. I tried some cube root over coral heads but the current was too swift. I tried it at the dock but the water was hard to see in, and the concentration inadequate. Also the tide was too high. We left the dock about 6 P.M. and headed for Shmayly Id. We trolled 2 lines one spoon and one orange & white jig. We caught a small shanad about a mile north of Shmayly. There was a moderate shamal wind with clear sky. This evening we used a ~~May 6~~ ~~Heavily~~ light over the stern and I got several halfbeaks one without a head and Jim got 2 small flatfish which were swimming at the surface. Apparently the flatfish were there in their right mind because we saw one or two more. The tide was going out. A number of crabs went by in the sea weed and a couple of snakes; the bait was very thin probably because of the current.



concerning the native fish traps there are palm leaves on the bottom to hold the bait which is clay mixed with crab and shrimp etc. and is placed inside and dissipates slowly. The traps are of black wire which they believe is better than galvanized wire. Their traps are certainly more convenient to manage than the large company traps. We ordered bait for the morning from some stake net fishermen. Bait is not easy to obtain in quantities with our available methods.

May 6 - Calm and clear at dawn. 8 A.M. 17 sails spotted on horizon fishing boats heading for Tarut and Saikat from deep water. About 10 A.M. it started to blow a hard shamal; so our point in trying to get bait became useless. We followed a fishing boat with a shore seine 250 ft. or more with palm pieces for floats and stones for weights, and a white thread mesh of about 2 inches stretch mesh. They had a crew of 8 men with at least 3 on each end of the seine. I took a picture of the boat. We went over to see what they had. They were hauling the seine from a deep spot on to a shallow spot and they were hauling down wind. Nearly all the fish were mackerel scad with a few small barracuda, small gerres, one or two goatfish, 2 new siganids. Then we went to Nejma where there were 2 traps (stake nets) in the sand, and the boat we spoke to yesterday. We got some bait from them 2 cuttlefish, some crabs, and a mole lobster. They had had a rather poor morning catch of mostly small sillago not more than 20 lbs. or so. We ate some of the crabs and the mole lobster for lunch. The crabs were not as good as blue crabs in the states rather flatter in taste; I still prefer the mole lobster.

In the afternoon, the shamal increased to about 30 miles or so with a dust haze over land, we had lunch and stayed awhile in a cove next to Nejma. Then we moved back to the anchorage just above the sand spit near the Ras-Tanara road. My trammel net sank again

even with only one anchor. The eel pots yielded nothing. We got nothing off a set line baited with cuttlefish. Night light fishing yielded next to nothing except 1 mole lobster, a couple of small atherinids, and a small scorpaenid, and more green bags. The bait was very thin. There were snakes as usual and a couple of squid. I saw one small fish ^{Pegasus} which may have been a flying fish. One gar and one small halfbeak were also seen, and a couple of crabs. There was almost no tidal current. The wind continued with lulls most of the night.

May - 7 Continued shamal with dust over the land. The bottom here is a grey muck sandy clay or clayey sand with a rooted green grass on it as we saw by what stuck on to the anchor. This is characteristic bottom of a large part of this area of the Gulf around Tarut Bay. Some of the clay got in my eel pot and cemented some of the bait into a hard ball all by itself. With such bottom conditions, any kind of dragging fishing gear is not very feasible in these areas. The grass is short with extensive branch roots, and is apparently a spermatophyte tho it is not now in bloom. By 8:15 A.M., we got under way again towards Shmayly Id. which we reached about 8:45 A.M. we continued west then north to the uppermost reaches of Tarut Bay; we reached the oil pipe line across the water at Safwah about 10:15. In the distance beyond was the Bahran road on the sandy shore, and several stake fish traps. The water was all rather shallow and murky. We passed some fish pot fishermen but they had no fish, and were setting their pots. Another fisherman was headed for the stake nets at the upper end of the bay. We did not go beyond the pipe line because of danger of tangling our rigging with a power line above the pipe line. Another island is ~~indicated~~ on large scale charts just west of Shmayly. Shmayly however is the only island ~~in~~ the upper end of the bay which is not covered at high tide. There are several sand spits



bare at mean low tide in the bay. This morning Jim found the Pegasus in the same net he had caught it last night. Tho dried out it is still a recognizable specimen of the family Pegasidae. It swam with its wings outstretched. I used 2 quarts of poison plus what wet poison there was left over from the other day, and I caught quite a number of fish among a large clump of rooted gulf weed just west of Shmayly Id and a little south. The cube root dust mixed with water into a thick mud makes an effective brown cloud of fish poison which sends some fish to the surface within 5 minutes time. The brown Plesiosa seemed most affected by this poison of any fish except tiny grunts. The crew looted a fish stake trap and reported Chirocentrus dors in great quantities. They brought back a bucket full of them from 15" - 36" in length which they had speared; I kept one which was not mangled for a specimen, U-48-44. I wrote up notes in the afternoon. About 6 P.M. I

saw what looked like a small manta ray jump clear out of water. It was possibly 4 feet across at the wings. About 7:30 this evening we tried the 100 foot seine on the north side of Shmayly Id. All we got were large atherinids, Cyprinodon dispar, small mullet, and one small porgy; all was just kept for bait. Fishing by night light rendered very little, I collected one large ♀ halfbeak with flowing eggs. It was calm during the evening & night.

May 8 - This morning I lifted my 2 eel pots which were set in about 4 feet of water on sand bottom with rooted gulf weed. One had a large scorpaenid and the other a toadfish. At 8:20, we got under way for Ras Tanara west pier for news of Gurley, Yusuf, more ice, supplies, and asked the dentist for a tooth ache.

Poor Jim spent the whole day running around trying to get Ahmed to the dentist, and also get some goods ordered. I sat guard over our goods with the flies and wrote notes and made up eel pot journals. I had a talk with an Italian teacher Marco Bormioli and he was

just starved intellectually, as are most intellectuals in this outfit. His field was philosophy and history. An Arab gave me a small *Acrothor* which he had caught. It had an olive green back and rich yellow stomach in life; by its black markings it appeared close to the species I got from St. Mary's Id. From the eel pots I got 1 *Plesios* and several *apogonids*. This evening we moved to the black skeleton buoy about 1/4 mile south of west pier where there are reputed to be flying fish. We saw one about 10 inches long come up under the light but we could not get him. The bottom was covered with fine grass but it was sparse there was sand and pieces of coral rock and about 15 fathoms of water. The bait mostly sardines, a few *Chromis* and *silversides* gathered around in tremendous quantities on both sides. I caught two more *Pegasids* of the same species. Aurelia jellyfish drifted by in large quantities. The tide was swift until slack ebb and the night was calm. We saw a longish black fish with a big head & thin behind which may have been a cat fish. There were also thin long tan fish on the bottom. We got a few nibbles and that was all. Approx. position $26^{\circ} 37' N$, $50^{\circ} 9' E$.

May 9 - We left our anchorage about 7 A.M. and passed east pier at 7:00 A.M. with clear sky and light ^{south} westerly winds. We caught two sharks just a little north of Ras Tanura. Terminal tanks about 1/2 mile offshore within about 5 minutes of each other. 8:30 A.M. abeam center of Refinery area. We are making around 3 knots with a smooth sea plus a light breeze off our port quarter. "Al 'ailiyeh" at 10:50 A.M. is the fishing spot we stopped at about a mile from shore opposite date palm orchard of Ras Al Kaliya. 4 fath. almost was the depth and the water was very clear with coral rock bottom small clumps of branch coral & some brain coral. We got no bites I saw a few small fish, and caught one larval *Tetraodon* on the surface. At 1:45 P.M. we headed back because we got no bites. The wind by 12:45 became moderate S.E. with small white caps. By 2:00 p.m. it had calmed down again to a light breeze. We caught two more *nacherel* about

2 mi. offshore, the last at 3:45 P.M. was caught a little north of the refinery area. A black grouper was caught over coral & grass bottom in about 2 fathoms on the orange & white jig. There were 2 strikes on a hand made Arab jig with teeth marks; no fish caught because there was no give to the line on the pole. We trolled 4 lines both ways. We sighted several ^{small} schools of small tuna with white tents diving at the bait, but as usual we had no luck in getting strikes. We trolled around buoy 7, and got a strike and caught a three foot barracuda, U-48-50. Then we moved to the buoy and Abdullah caught a *Lethrinus*, U-48-51, and that was all. There were quite a number of sooty terns on the buoy, about 30. The wind increased from the ESE to squalls and white caps by 6:30 P.M. when we left the buoy and headed back to Tarut Bay which we reached by sundown. We had a rough night with swell from the south and strong winds, so we did no night fishing and anchored 1/4 mile north of west pier.

May 10 - Strong southerly winds till 10 A.M. with a high tide, and then it became a flat calm with a very hot sun till 4:00 P.M. when the shamel came up and blew moderately till 8 P.M. and then strong all night. We wasted a whole day in at the pier again today to meet Burley and get a few more supplies. Jim and I went into Ras Tanura for a shower and a shave. This afternoon, we picked up 3 of the big traps 1 mi. north of west pier in branch coral bottom. I obtained a number of angel fish U-48-52, *Heniochus*, a parrotfish etc. Then we moved in shore for the night, and had the best night light fishing yet. Also I caught my first fish by baited hook & line in Arabia, a small red-gill *Lethrinus*. We saw 2 small soles swimming along at the surface. Yusuf caught a small barracuda; Ahmed got 2 snakes in the circle lift net. I got 2 long white flat worms writhing near the surface about 2 feet in length in life. They spat out their radulas when put in formalin. There were even barnacles on the snakes. We also got 2 more *Pegasids*. The even-

ing was actually more varied than the others.

May 11 - Continued strong shamel. Yusuf caught a small nurse shark on broken up gut gut. In one eel pot I caught 70 small Terapon 2-4 inches, 4 apogonids, 1 Faskar, 1 Lethrinus (red gill cover) in an overnight set. Since I had so much else to manage I saved only 2 Terapon. It was a wire funnel trap. The cloth funnel trap caught only one apogonid. A pipefish mysteriously appeared in the bottom of the collecting can; all I can think of is that it was coughed up by the shark. He also caught a blunt head grunt. Then we moved into the dock all day to get our rigging changed over to the Tarat-jig poles. The wind blew hard all day. I swatted flies and wrote up notes.

May 12 - Fair with continued shamel winds. Last night the we went to the same place as before the fishing was poor with scattered bait and cloudier water. I caught one riganid floating at the surface like a frog in a pool. This morning we went into port again to see Gurley and get Ahmed straightened out. Then we went out and picked up the big traps (four of them) the most recent baited one had only 2 small fish; one almost without bait was loaded with 8 riganids, a Lutjanus, several chaetodonts, angelfish, etc. I had a case of the runs so did not feel as well. The eel pots in the morning place left over night yielded 2 toadfish, and some more Terapons. In the afternoon, the shamel increased with a cloudy sky, and even a few drops of rain. I felt worse till late evening; we stood in at west pier tied to pipes 100 yds south of the pier to pick up Ahmed when he came back from Shahran. I wrote a letter to Lucile.

May 13 - At 2 A.M. I almost rolled out of bed as the boat turned over on the starboard side, because the tied had gone out. I got into Gurley's bed for awhile till it straightened out.


47
No equipment went over the side. At 5 A.M., Abdullah captain speared a staiti ♂ 8 lbs 595 mm S.L., and 69 mm T.L. with a long piece of goat skin in its stomach. The testes were yellowish and small but were more the shape of testes with sharp edges and no blood vessels. They called it a male because it was more elongate, and less stocky. The day was spent in at dock getting a few supplies, supervising work on the Tarat. I wrote notes and wrapped fish specimens all morning. 8 gal. tank in box #6 got completely filled with fish in formalin, and #22 with a trammel net were returned to the storehouse. A 55 gal. drum of formalin was picked up and box #13 with mason jars & rotenone. Mr. Sanders and others were very cooperative. Jim and Mr. Sanders cleared it through customs, and it took the usual amount of time. It became calm and hot from 10 A.M. on, but the shamel came up again before 7 P.M. with moderate winds. This evening we anchored 200 yds. from shore 1 mi north of west pier. There were snakes plentiful as usual and the bait was scattered and then became heavy like a movable cloud under the light. It consisted mostly of hering and dussemierids. Jim speared a squid with a spear. There were several blue crabs and 1 mole lobster caught. I caught a small scorpaenid. We saw several larger fish like small barracuda, and we saw one fish with black and white band which was longish; but it went quickly. No two nights even in the same place are the same for the fishes.

May 14 - Calm and clear at dawn. The eel pots yielded Terapon, Lethrinus (red gill), Scolopsis with the brown band, and one paraperid. I kept one paraperid and one of each of the others. We picked up 2 of the last traps in water and got blonfish and several parrotfish, Plectroshomus, filefish and porgies. We rounded Ras Tanura pt. at 9:30 A.M. in a flat calm headed north. Around the boat in the morning I noticed a small school of Scomber jumping about close to shore. We reached the Refinery area at 10:45 A.M. Small schools were in evidence of Scomber. At

10 A.M. a shanad was caught about a half mile offshore on the white & blue jig. We reached our destination at 1:30 P.M. off Ras al Kaliya about ^{1/4} mile ~~300 yds~~ off shore in 1 fathom of water. We passed over a rock ledge just south of Ras al Kaliya then it changed to stubby branch coral which I had mistaken for grass bottom, before other sand & scattered branch coral where we moored. Ahmed and I rowed ashore we passed over hard sand bottom, branch coral clumps (small), sand & coral rock, hard sand coral rock and brown fine leafed algae (about 1 foot long), then hard sand to the shore. The water was 4 to 6 feet deep ~~was~~ fairly close to shore. We found cattle bones abundant on the beach one was at least 9 inches long. We first put 100 yds of water between us and the ^{two} customs officers or coast guards they wanted a "chit", but there was nothing they could do about it. I tried to poison some branch coral with cube root (~~two~~ ^{two} quarts) one small wrasse turned over about 6 feet down and that was all. I saw angel fish (blue & yellow type), *Neoglyphidodon*, *Abudefduf marginatus*, *Pomacentrus* (black), wrasse, a blenny or two, porgies of several kinds; ^{goutfish} also there was a small school of jacks with hard scales & serrula mouth (like those mackerel scads) one was over a foot long. Over sand bottom I saw a large sting ray with a thick tail and a wing spread of about 4 to 5 feet. Abdullah tried to spear him but missed. All pots and traps were set and baited on branch coral and sand bottom. A shanad came up about 6:00 P.M. with moderate force but it lightened by 10 P.M. It was cloudy and calm in the afternoon. The boat rocked and it was too windy for successful night light fishing. In fact we saw less fish than any night hitherto; it was all small atherinids. On our way to Ras Kaliya we could see many fish swimming on and over the bottom. There were many small porgies, angel fish, and a considerable number of fat sided parrotfish 8-10" long.

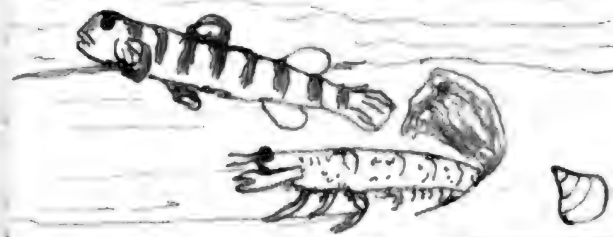
May 15 - We hit bottom about 2:30 A.M. at ebb tide, there was less than 2 fathoms and high tide, and less than a fathom at low tide. The crew pulled on the anchor a bit, and we were clear. Fortunately the night was calm. We had the traps picked up in the morning. The eel pots were empty; one trap on sand and weed bottom yielded one catfish, U-48-60, the others had nothing or one or two small *Lethrinus*, or faskar porgies. The catfish was beaten up, but good enough for a specimen. We got under way about 7:30 A.M. with grey skies and a calm. We headed back to Ras Tanura, and caught 2 barracuda off Ras Kaliya. We hit a couple of squalls about 9 A.M., leveling out to a light shamal about 10 A.M. no white caps. At 10:15 A.M. off buoy 5, we went thru a large school of "jibtabah" without any strikes. A couple of hundred sooty and common white terns were flying above and diving down. 1 mile south of buoy #5 we caught a big shanad on the red & white jig. 12:01 P.M. light airs & grey sky. 2 miles off refinery (Ras Tanura) we caught a shanad at 12:10 P.M. Also 3 schools of jibtabah were seen with terns on top. 12:17 another shanad $\frac{1}{4}$ mi west of buoy 7 & N Miller, light airs. At 12:25 P.M. we caught another shanad with 3 small scads (3-4") inside. One scad was quite fresh still. Shortly after 1 P.M.; the sun came out and about 1:30 P.M. a light shamal sprung up again. We pulled into Ras Tanura at 1:45 P.M., and news was that all Aramco was out looking for us. And so it goes; Yusuf was also back from Bahrain. Clear in the afternoon with light shamal winds; we left the pier at 4:30 P.M. after placing orders to be picked up the next day. We headed for Shmayl Id. and fished to small barracuda along the sand bar just north of Shmayl Id. which is under water. I added up and check my collection with Blegراد's and find I have observed 79 species, and have in my collection 69. I also started my monthly report to Dr. Schultz. After dark, using fish for bait, Ahmed pulled in a small shark, *Carcharias meniscorhynchus* - U-48-62. A 10" *Lethrinus nebulosus* was also caught,


but not kept. Night light fishing did not yield much; just some larval fishes. Large ottorinids were also seen and half beaks. A pupfish and a Pogonias ~~was~~ by, but were missed. Also a small shark came by under the light about 2 feet long. Crabs were fairly numerous.

May 16 - I lifted the eel pots this morning. They were placed near the gulf weed banks. Only one yielded anything, a toadfish, Pomacanthus and Tessaron. It was clear and hot and calm all morning. Abdullah, captain, little Yusuf, Ahmed, and I went ashore armed with a throw net and a 25 foot seine. Abdullah caught a tern like the Caspian tern  It had a grey back and white below and are apparently breeding now as we saw some eggs and young birds. I got a young bird which was pickled. Seine collections were made around the island in sandy spots, all were included in one collection I got, 1 blenny, Sillago, Gobius, Cyprinodon, Chelon, Sparus etc. I saw 1 1/2' guitar fish take off into deeper water. We did not get any Platycephalus probably because the tide was still low. I saw some more of the same lizards on Shmayly that I had collected before. At noon, we saw a Chana jump clear out of water not over 150 yds, behind the Palestine. We headed back to Ras Tanura about 1 P.M. to pick up supplies again. We worked on some of the fish rigging for the Tarut, and hung around till evening. Everything was screwed up as usual without going into the gory details. Conley appeared in a new hat from Shahran for about 10 minutes. About 7 P.M. we headed back for Shmayly, and at 9:00 P.M., young Yusuf landed a shark on hook a line, 72 cm. t.L., 5 lbs. ♀ with young ready to be born, U-48-65. Another one a ♂ about 18" was on the hook the next morning which was also included as U-48-65. The night was close and calm interrupted with sudden gusts of hot desert wind.


May 17 - I got up about dawn this morning, and used cube net to collect at low tide. I collected most of the fish from a gulf

weed area, 4 blennies from a coral rock pool, and a flounder lying still alive on the sand. I saw closely this morning those fish that live in holes in hard much sand. They are apparently commensal with a curious mole shrimp which digs the burrow and the fish lives in it. The fish seems similar in appearance to a large goby





something like Periophthalmus; it is definitely not a paraperid as I thought might be the case when I first saw them in deep water (see p. 28). I tried to poison a couple of tanks but met with no success. About 10 A.M. we headed back to west pier to check up on the Tarut. We spoke to some pot fishermen. All they had was about 20 lbs. of small porgies, faskar, etc. and several blue crabs. Next we spoke some stake net fishermen who had a couple of barrels of cuttlefish and crabs, and sold us about a half barrel of bait for 4 reals. They also coughed up a small (Chiloscyllium griseum) which was a reddish tan in color. We reached West Pier about 12 noon. The Tarut crew was out for lunch. It was windless hot and sunny. We tied alongside the new fish pier just north of west pier. and waited till about 1:30 P.M., before all the Tarut crew assembled, and Jim shoved off with the Tarut I remained with the Palestine. We headed ^{one} S.E. for Najwa with northerly light air and a clear sky. We tolled ~~two~~ lines and passed several schools of Scomber (Jibbabe) the usual size about 20" jumping around in the water with terns diving from above. No strikes from them as usual. We arrived at Najwa at 3:30 with a moderate shamal wind & a white  buoy 1 mile N.E. of our anchorage. We anchored in a wide sandy area with a U shaped band of reef on either side and straight ahead of us. We anchored in about 3 fath. of water with mud sand bottom. Soon the Tarut came up with Jim along with 4 Arabs. We set the 6 traps at Najwa, and then returned the Tarut made 15 3/4 R.P.M. towing the Palestine dead weight. With the Palestine running the Tarut towed just barely 16 1/8 R.P.M. full speed.

Jim figured 8 knots with both engines running and 5½ with just the Tarut. About 2 miles east of Ras Tanura the Palestine hooked into a large Rachycentron canadus "sikon" around 30 lbs.; it broke off the hook and was lost. Black color on top and light below and protruding lower jaw rather confirm that it was this fish. Schools of fatfish were passed on the way back without a strike. No luck either for the Tarut. We left Raymah about 5 P.M. with a moderate shamal wind and white caps. The shamal increased and around 7 P.M. it became cloudy and quite cool. During the night the wind came up and died in squalls. We slept on deck, and the crew on the deck roof. Under the night light, there were mostly just young herring with some larger herring like fish underneath.

May 18- Fair and clear today with moderate shamal winds. This morning, I got only one plesiops (brown) out of the eel pots, and I ran one poison station on mixed sand and gulf weed bottom in an area surrounded partly by the coral rock at low tide. I got a Siganus siganus? (tan with small light blue spots) which most approximates Blegvad's species. A couple of small spotted groupers, gobies, blennies, porgies, pipefish, and the usual brown Plesiops and green wrasse turned up. Plesiops (brown) seems to be hit the first and the hardest by cube root, then pipefish in a few numbers, green wrasse, and Apoegon thurstoni, young Perilates, yg. Terapon, the other fish are affected more or less incidentally. I used 2 quarts at once in a thick mud and a more confined area which seemed to help. The water was 3"-2 ft. deep. I also collected some brittle stars from some brown fleshy tri-cornered sea weed. I did some observing under water with the face mask and went over a considerable area of a short grass bottom from 2" to 6" in length in much sand  also mixed in was scattered fleshy green grass with runners not single as the thin grass.

I observed more closely the shrimp and the hole fish see (p. 51) and the shrimp is ~~dark~~ about three inches long and shaped roughly like a fresh water crayfish. The shrimp is usually busy running back and forth dumping a load of mud out of his hole. Two holes were 1 to each other so that the shrimp from one hole was actually dumping his mud into the other one's doorway. This, however, caused no fight, but they both continued carrying mud out furiously. Each hole had its sentinel fish. One was a Galerius-like blenny of about 3 inches the other I am now sure is Periopthalmus because of the superior eyes blunt nose and almost stalk-like united ventral fin; specimens were three to possibly 4" inches in length. Smaller specimens of this hole blenny I believe to have collected both today and yesterday. So far I have been unable to poison them. The Periopthalmus do not seem to live in less than 3-4 feet of water at dead low tide, whereas Blegvad's fish were obliging enough to be on dry land at low tide.

The morning was spent in fussing around rigging the lines and tie-lines for trolling on the "Tarut" which came alongside. Jim and I did it more or less alone, since we were the only ones who had even a faint idea of what we were trying to do. Though cool at dawn, it was hot during the morning, even with the shamal wind. The shamal was stronger in the afternoon.  This weird creature vaguely resembles the small jelly or spine covered spider crabs found in the  triangular brown weed this morning. Specimens of plants mentioned were preserved in formalin. In the afternoon, the shamal increased gradually going eastward until by 5 P.M. we had a stiff S.E. wind. I wrote notes and packed fish specimens in the afternoon. An airplane overhead and a note brought us into the pier and eventually to Shahrhan. The Tarut left us to get the crew's food rations. The night became calm later on with occasional squalls.

May 19- We got up at 5:30 A.M. this morning and it was almost

a glass calm. We were tied up to the fish pier. Last night I got a nice specimen of a flyingfish from an Arab lad off one of the launches. It had flown on board; it had ripe flowing adhesive eggs. U-48-69. I finished a monthly report to Dr. Schultz.

The trip to Al Khobar in the Tarut was very calm about 3 hours 6:30 - 9:30 A.M. It was hot and rather humid. I saw a couple of schools of jebalah between Ras Tanura & Najma.

The A marker at Najma was on dry sand this morning at low tide, which explains the dries 4 feet on the chart. It might be a good place to collect with poison some time at low tide. Just north of Al Khobar we saw great numbers of large, 1 foot in diameter, solid white jellyfish similar in shape to the one figured on p. 20. We saw one small sea turtle about 3 feet. We saw a large flock of cormorants, and terns here and there. I got a hair cut, shower and shave, and wrote a letter to Lucile and mailed it and the one to Dr. Schultz. Later Jim came around and we went to see Ed Burley in his temporary office in the brick building. He was in good spirits, and we planned the work of supply for a fishing trip for Mr. Sulaiman, the Saudi-Arabian finance minister, to Jez Jimah for an overnight trip with all the trimmings. The trip developed into this larger idea just today. Besides being interesting to visit the island; it will be good to meet Mr. Sulaiman. The shamal blew all afternoon and evening. The shamals may be our stumbling block for the trip. This ~~evening~~ ^{evening} ~~afternoon~~ I went to the movies just to pass the time away.

May 20 - Clear and hot today but slightly cooled in Shahr by a windy shamal. All day was spent driving around picking up supplies for Abdullah Sulaiman's fishing party. I got the Arab food and bedding, and Jim got the American food and Ed got some details rounded out. The "Tarut" left Khobar pier bound

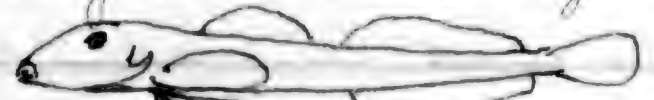
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for Ras Tanura at 5 P.M. loaded down. Jack Mahoney, editor, of the San and Tase, spoke with me, and wanted a little story about me and my purpose being over here, other than "a butterfly catcher" which reminds me of the Shahr (fly) salute. I also spoke with Jim Knight, Jim Stewart's roommate; he knew the Keddy's in Washington, and the Friends' Meeting. I copied down the Companies standard rations for Arab workers which I thought would be interesting. 1 man for 1 day at the Arab Commissary:

1 oz. tea	4 oz. lentils	2 oz. salt
1 oz. coffee	$\frac{1}{3}$ oz. onions	$\frac{1}{8}$ oz. cardamom
3 oz. sugar	1 lb. rice	$\frac{1}{2}$ oz. of cloves
$\frac{1}{2}$ lb. flour	1 lb. dates	
3 oz. ghee	$\frac{1}{4}$ oz. Curry powder	

I thought of these words tonight alone in my room. 'In the presence of God and these our friends, I take you Lucile Mendum to be my wife; promising, with ^{divine assistance} ~~God's grace~~, to be a loving and faithful husband as long as we both shall live.' It seems now that I am away that I try not to think of her too often, because it is no joy to be apart. Nevertheless, her bright eyes and ready smile pervade my thoughts daily.

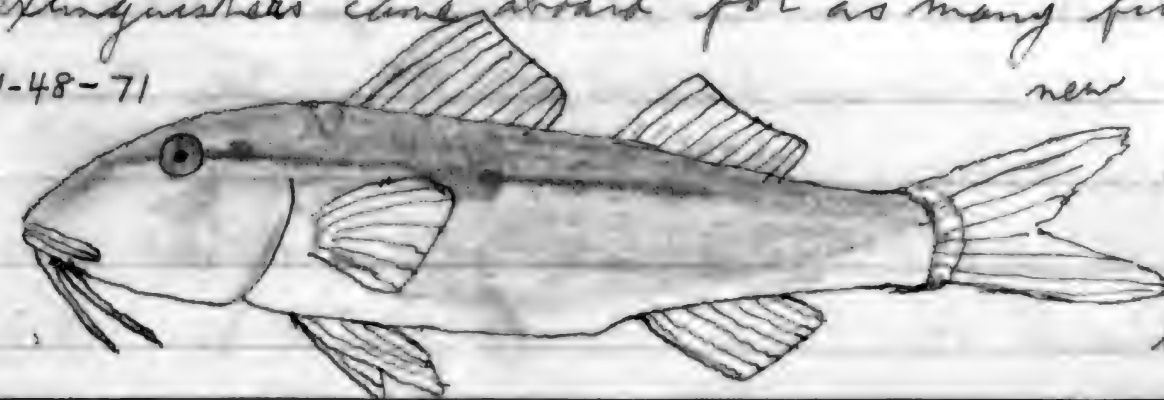
May 21 - Jim and I left Shahr by taxi at 7 A.M. and managed to miss the worst heat of the desert. We stopped at the storage house. Jim did some telephoning, and I got some cube root and my two harpoons, and wire metal screening. There was a shamal and clear sky most of the day. I got myself a head ache from the heat and diving into ice air cooled buildings. We spent the whole day getting supplies aboard for the trip. The Tarut nearly dropped off its propeller, and whether or not it will be fixed is problematical. The shaft was broken, but it was hauled up on a pier derrick and fixed by 10 P.M.

May 22nd - The shamal continued with intensity all day with white caps on the bay. It quieted a little at sunset. We remained tied to the fish pier. All the tent ~~two~~ by four pieces on our roof would probably make it easy for the Palentine to capsize in a rough sea. The fish pier was frequented a good part of the day by Arabs and one fellow was having good success catching geroids (6-8") with sand worms for bait and small hooks. Abdullah also caught several this way. Some coast guard officers came aboard for tea and talk this afternoon with Jim. I caught a small filefish near my eel pot line before dark U-48-70, and I also caught some ^{small} halfbeaks etc. under the light at night.

May 23rd - It calmed down some last night and early morning, but by 8:30 A.M. it was clear and blowing a strong shamal still. It did not calm down till evening, and it was relatively calm all night. The crew fished off the fish pier with small hooks and small sand worms for bait, and they caught 5 *Periphetthalmus* for me that way. I caught a lot of herring and small scads with the hoop net in the afternoon. The night offered fishing including a new specimen  of *Callionymus*? I also caught several small *banarunda* about 2" long. Also I saw 2 spotted eagle rays, *Actobatus*, swimming offshore. They were a scarce 2 feet in wing spread, colored much the same as the west Indian species.

May 24 - Increasing shamal winds and clear sky wind more westerly of north. Specialists boarded our boat in numbers as usual but offered no useful suggestions regarding our leaking stove. Then about 6 fire extinguishers came aboard for as many fire hazards. I caught a


U-48-71




new goat fish in my eel pot this morning with nearly black red sides and olive green back barbels white, fins colorless except

the first dorsal. It continued windy all morning and until late afternoon. I wrote up notes and wrapped fish specimens in the morning. In the afternoon, Abdullah Suliman and party came out on the pier a few minutes and we chatted with them. They did not have much time I also talked with Darry Owen and ~~death~~ he and Abdullah want me to come over to Jiddah any time. In fact Darry Owen said I will be seeing you in Jiddah, and Mr. Suliman said he would show me the kinds of fish there. Mr. Suliman still wants to go fishing and is apparently willing to wait for the weather. We barely managed to get dressed and have Abdullah put up the flag before they were on top of us. I sent a letter to Lucile today and also, a character sketch of myself plus explanation of my mission over here to Jack Mahoney of the Sun and Flare. I also received news today from Lucile of Larry's intended marriage on June 6th to Marion Williams; thus endeth the bachelors in our end of the family. If I had not already been married to a wonderful wife, I would have felt a very definite pang of jealousy for Larry's happiness. Jim and I went into Res. Tanura for supper and I got a travelers check turned in for reals.

May 25 - It was calm most of last night, and a moderate westerly wind set in about 7 A.M. The sunrise was dusty this morning with a silver sun burning through the dusty haze; as the moon just past its full was hazy last night. Today was fair with light winds most of the day. We could have gone off but the weather prediction was for a bad shamal, and no definite orders to proceed from Shahran. Needless to say, I am tiring again of waiting. We put oil on board, and got the stove fixed again. My eel pots continue to yield fish, but around here I get more during the day than the night. *Gyogon thurstoni* seems to be the only one that runs in at night. Yesterday, I got 9 blunt head porgies

in 2 pots just in the afternoon. I gave most of them to the crew. I used the face mask between the gize and the fish pier this morning and went over mud sand with light grass bottom. I saw holes with *Periophtalmus*, and free swimming saw 3 inch *Sargus* most, a gerrid 10", several 12" *Sparus curvieri*, and large schools of black spotted herring, and the small jacks swimming aside down under the boat. On one rock with  that tan oyster like weed I saw a 1/2 inch pomacentrid bright blue above and deep yellow beneath just like young *Po. leucostictus* in the W. I. I would not be surprised if this was merely the young of the large black pomacentrids which are common around here.

In the afternoon, I rowed up to a hard sand area with branch coral over it. I observed with face mask the predominant species there the fackar, *Lotjanus*  with the black spot under the second dorsal, *Scolopsis penicillatus*, *Scolopsis* (striped), and lined *Palates*?, black pomacentrids, black (*Salarias*) blennies, black *Pteris*, green wrasse, and that was about all. I wrote a letter to Lucile and also to Larry.

Around 5:30 P.M. I went out in the Tarant around east pier, and in an hour we didn't even get a strike. There was a thick dusty brown haze all over the gulf and visibility was less than 1/2 mile. We saw both kinds of porpoises in great numbers. We also saw jibabat, and I saw what looked like a small marlin jumping out of water tho I could not see a bill at that distance.

This evening, I talked with Fred Ellers, Gen. Engin. Sect. 2251 St., who has done spear fishing at Half Moon Bay. We may get together some time. It was calm and extremely damp from dew tonight. In fact everything on deck got soaked. A light breeze made us feel cold because of the dampness, and we slept below where it was drier.

May 26 - It was flat calm this morning and the sky clearer of dust with cirrus clouds. I tended the eel pots and lost one right off the end

of the fish pier. At 7:30 A.M., I left on the Tarant for Nagwa to pick up the wire traps. When we reached there we circled around about a half hour and Abdullah must have spotted them, for we stopped and in 20 minutes 4 traps were recovered, and the other two after further search were given up as stolen. We reached Nagwa about 8:15 A.M. The water was thick with aurelia jellyfish and several diels. I swam around with a face mask a bit but not much over sand bottom. Just before reaching Nagwa a charad stuck but fell off. After leaving Nagwa about 9 A.M. we lowered both jig poles and headed for buoy #7. A fish pot boat with 6 crew and one funnel fish pots was there and a jibboot also with awning canvas. About 11:00 A.M. between buoy 7 and East pier we caught a charad 8 lbs. on a bone jig. Between east pier and Ras Tanura point we hooked a tuna, about 15 lbs., with a blue and white jig(?) and 4 oz. weight. Light east winds and clear sky. It had average sized black tuna pectorals and the characteristic bronze lateral faint stripe and dark blue back, but that was all that I saw. I pulled it up outside another line, and in attempting to gaff it it threw the hook; this was about 12 noon. We went back several times but had no success. The boys fried some hamar for me, which was pretty good. Now re: the traps there were 2 large hamar (1 was 68 cm. S.L. and weighed 6 lbs., it was an unripe ♀ with lots of fat bodies inside but no stomach contents). The other one was about 5 lbs. with empty stomach. There were about 6 six small ones, several small lethrinids, parrotfish, 1 angelfish, 2 *Plectrochelys*, 1 *Siganus*, and more important there were several dead fish mostly Hamar and a half gone *Hemiodus* and several partial skeletons. Thus leaving the traps for any period of time over one or two nights is not good. We reached the fish pier again about 1:30 P.M. I wrote notes and wrapped fishes. We took on supplies again in the afternoon. Light easterly winds in the afternoon.

I did some night light fishing off the Fish pier and got a few specimens of common stuff shiners, herring, etc. and larval peroids.

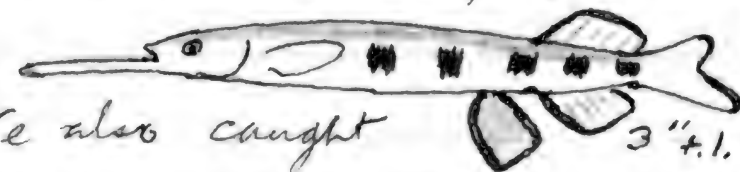
May 27 - We are still waiting definite word from Shahran. This morning was fair and calm; thus 3 good days are being almost wasted. Saif, the pearl diver, on the Tarat recovered my eel pot this morning and it contained two 25 & 26 cm. groupers, *E. tauvina*, and one black *Plesciops* and an *Apogon thurstoni*. I gave the groupers to Saif as a bakseesh. I left on the "Tarat" with crew at 9:45 A.M. Sky almost clear with light cirrus clouds and light easterly airs. Slightly stronger south easterly breeze came up around 10:30 A.M. but remained light. We trolled around the pier (east) and out near buoy #7 with 7 lines one with 1 lb. wgt. We trolled thru a couple of schools of *fish* and we didn't even get a nibble. It was the worst time I have seen yet. We headed into port about 12:15 P.M.

The grotesque thing below is an attempt to give an idea of the approximate color distribution of *Lethrinus nebulosus* which is very common here and turns dark brown to blackish when it is put in formalin. All colors except the purple blue spots on the head are rather diffuse and indistinct. Blue (light steel color) is found on the top sides interspersed with indistinct yellow or golden. Indistinct black bands appear at will.

This afternoon, after telephone calls, and various people coming aboard, we got under way to Tarat upper Bay. Then the crew wanted water and we stowed in the sides of the boat port side on a pipe barge off west pier. When they got water, the tiller rope ceased to work (it became slack, hence another delay). We got going about 6 P.M. with moderate easterly winds.

The Tarat went aground just beyond Za'al (Shmayh) Id. and

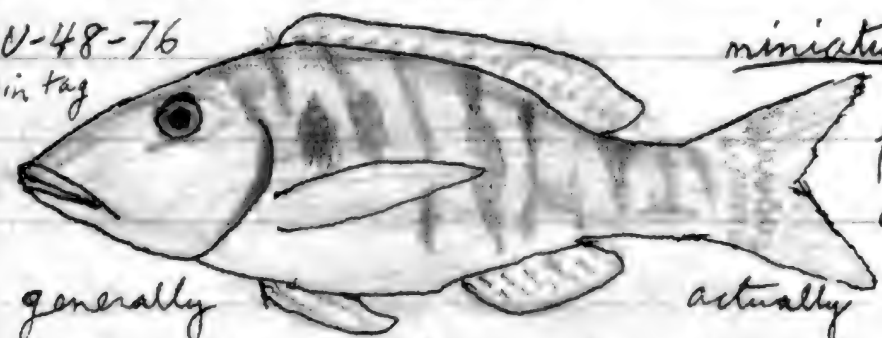
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it was so late and the Palestine was going so slow that we went back to Za'al to anchor for the night. We all fished over the side with the night light, and the new specimens were 36 *Hemirhamphys* ~~*Dermogenys*~~ ^{*par*} small halfbeaks with large orange tan ventral fins far aft near the anal, and they stuck out like large pectorals and gave the appearance of making the fish seem to be swimming backwards. We also caught numerous small bill fish apparently both *Ablennes* & *Tylosurus*. We saw some spotted or rather blotched fish (8" approx) about the build of a goatfish. They kept their distance from the light, however, and did not give us a chance to collect them. Crabs and one cuttlefish came along and were caught. It was moderately damp with a fair easterly breeze. At 2:30 A.M. I got cold on deck and needed a blanket, the wind was rather breezy then.



May 28 - Today was fair and calm at dawn. My eel pots only yielded one *Apogon*, *Lethrinus nebulosus*, and a couple of crabs. So I left them in it. We left after breakfast back to the Fish Pier to meet Hurley just up from Shahran still with a bad cold. The gist of the visit was that we have to come to Shahran again Sunday partly to unload the stuff, and partly just because. In the morning I set the eel pots, and then cleaned off the bottom of the row boat which was composed of green algae (1 inch long) some almost brownish. It was filamentous and slimy to the touch. Actually there were very few barnacles. The bottom of the Palestine, however, has just about everything from barnacles to algae. I also wrote notes and wrapped specimens, and started a preliminary report of work to date at the request of Hurley. This afternoon, we unloaded the 2 tons of tent frames off our deck roof, and the boat rose. Then about 3:15 P.M. we headed up Tarat Bay. Jim sprained his wrist by skidding on the wet deck early in the morning, and went to a doctor.

during the morning on shore. The breeze stiffened from the east around 4 P.M. and there became light white caps on the bay. In the eel pots near the fish pier this afternoon I got a 4" parrotfish, 11 green wrasse, 4 *Lethrinus nebulosus*, and 1 *L. miniatus* (with red gill). This picture of *Lethrinus*

U-48-76
tin tag



miniatus shows the dark phase recently dead in formalin of the fish plus the red gill covert and smaller eye. *L. miniatus* is generally actually lighter colored than *L. nebulosus*; in fact it is almost silver at times. 2 specimens; 1 of each species are being kept for later comparison; the one with the tin tag U-48-76 is *L. miniatus*.


We reached Safwa just south of the Qatif pipe line where we cast anchor in $1\frac{1}{2}$ fath. of water. We anchored to the lee of a sand bar which is perpendicular to the pipe line. I rowed ashore and took a "stoaf" around the beach and saw 2 sting rays in about 4 feet of water with approx. 1 foot discs. There were also several schools of young halfbeaks. When I came back aboard I took the air and water temperature 34°C in the air with wind blowing and it feels comfortable, and the water was 31°C and does not feel particularly warm or hot. Young Yusif caught a 20" wide 8" mouth shark on fish bait about 7 P.M. We used the usual light and dip net over the side and there were halfbeaks and a few small herring, and gradually huge schools of *Tricacanthus* *indicus* came into sight and the crew caught well around 75. Abdullah and little Yusif were catching them like mad for about an hour. The fast swimmers *Tricacanthus* are rather stupid. Their guts were full of small hard stuff shells and small crab claws, etc. They were nearly ripe males and females. In fact a translucent ger exuded from some but it seemed hardly white enough for milt. Their eyes were like transparent red marbles, and the skin like sand paper.

May 29 - I moved above deck about 1 A.M. and awaited and slept

till 3 A.M. for low tide. I headed in the row boat for the sand bar to the east, where I saw 2 sting rays swimming along last evening. I walked up or down the sand bar for quite a ways until I saw and speared a *Platycephalus*. The bottom varied from sand to much sand and some bottom with short grass. I also went over some bottom in 6 inches of water where I saw one small *Periophthalmus* and many holes; it was hard bottom, and small blue cebs about 2" were very common. I finally caught two *Rhinobatus granulatus* and another *Platycephalus* and even speared a small sillago in a channel than the sand bar. Fish seemed most abundant at the mouths of two sand bar channels. The smaller *Platycephalus* had an unidentifiable fish head in its mouth. It was flat calm at 3 A.M. with a moderate slight channel at 5:30, and nearly calm shortly afterwards. The night was clear with moon and stars, and there was a rather heavy dew on deck.

After breakfast, I picked up the eel pots, and found one small grouper, an apogon, and several *Terapon puta* who were grunting faintly (like sea robins). I preserved several of them. At 7:30 A.M. we saw a grey porpoise and slightly later a large 3 ft. *Torpedo* ray jumped out of water twice. I saw it the second time; it looked like a mussy grey sack with a stoutish tail. The tide was coming in. Also there were large pieces of sea foam (like little icebergs) floating around in the water. We left our anchorage about 8:30 A.M. and headed back for Ras Tanura. I examined the stomachs of 5 *Terapon*. One had 2 fair sized 2" shrimp (apparently a spawned out ♀); the others had pieces of small fish; one a possible silverside. The varied from 3" to 4" total length, and one of the smallest was a mature ♂. Jim and I had just about discussed the uselessness of trolling in shallow water on a calm hot day; when at 9:45 A.M. Ahmed started tugging with a fish. Yusif the elder landed it. It was a 13 lb. *Chorinemus lysas*. I took plenty of pictures and finally decided

to save the head as a specimen, since the crew cast sort of hungry looks, and it would require a barrel to pickle it. There is a confusion of 2 species in Blegvad, based on the head. The rear dorsal and anal fins grade into finlets with slight connections between all so that what is fin & finlet is highly debatable. The anal opening is rather in advance in this species so that the body cavity and testes extend nearly 3 inches behind the anal opening, also there was a rather large semi-transparent air bladder. There were one or two copepod parasites like the ones in *Scorpaenidae*. We arrived at the fish pier about 11:00 A.M., and we almost plowed into a barge. Flat calm prevailed with accompanying heat. Temperature at noon on bare wood deck in sun 45°C. At one o'clock, there sprang up an east wind. At ^{2:45} P.M. Jim returned from the clinic and getting his wrist strapped, and we left the fish pier, and found an east wind with small white caps. We passed some (2) large terns on a floating 2 by 4 with large black caps with rear tufts and a brown back and yellow bill and other parts white. We saw 4 grey bay porpoises jellaf along side for awhile and then they fell back jumping out of the water (two of them) close together possibly just playing or a mating act. We arrived at Darin at the south corner of Tarut Id. around 4:30 P.M. We went ashore with Jumah, capt. of the Tarut, to see Darin and see the fish market. The only fish we saw were *Siganus* "sawfi arabi" on a couple of strings. Nevertheless we visited Jumah's house which was built of the typical coral rock with shells in evidence all over the pieces of rock. We had Arab tea, milk, and coffee with pineapple & grapes thrown in. Later even, a customs officer had to talk with Jim, so we did not get back until after sunset. Darin is an old pearling town and the old sheik's castle is quite a sight with its rounded towers at either end

and placed on a high point in the town overlooking the bay. A boom, numerous jalloots, and one sambuk was on shore  with its sharp double ended hull. There were also numerous small "guly" of several varieties. I never saw such a maze of fish traps as these are in Darin; there must be close to 50. The streets were very narrow, and the women all wore black skin tight masks rather than the veil type mask. The children were amused and fascinated by us and followed us thru the streets. There is a piped spring down to the west of town near the sea. It is a six inch pipe with a steady strong flow of water (probably slightly brackish). The town is dry and well above high tide but high water runs part way in each of it where there is almost a field of greenish grass, and then a date orchard beyond.

This evening, I fished over the side with the night, or rather just watched. I saw one small *Pegarus*, but large silver sides were the most numerous. There were only a few hering and half beaks. The bottom was much sand with considerable growth of grass. The evening and most of the night was flat calm.

May 30 - There was one *Apogon* and 20 or 30 *Tetraodon* in the eel pots this morning. It was windy just before dawn this morning and moderate easterly winds thereafter. I wrapped fish and wrote notes for about an hour & half before breakfast. We left Darin at 7:30 on the Tarut bound for Al Khobar. The wind was light from the ^{south east} ~~north west~~, and sky clear. We arrived at Al Khobar about 10:30 A.M. Mr. De La Mar showed me a broad sawfish sword which measured 23 inches indicating at least a 6 or 8 foot sawfish which was caught off Al Khobar pier. According to Blegvad, it appears to be *Pristis zijsron*.

I wrote letters most of the afternoon, and waited for Burley, but apparently he had or did not return from Ras Tanura. The temperature in the sand at 5:25 P.M. outside the verandah was 45°C. It still felt

like a furnace. Because we are called back to Shahrhan a day at least or possibly 2 days will be completely wasted. My first article came out in the "Sun & Flare" tonight; it was more or less an introduction as to how it happened to me doing what I am doing.

May 31 - Gurley is still undecided about staying on, but it looks as tho he will continue on a temporary contract. We had a meeting this morning with Gurley, Stewart, and "Swede" H. E. Morrell, the new fisherman from IBI. He is over 6 feet and seems very nice with a long standing yen for fishing. He has fished on the California coast. I think he will make a good and desirable ship's mate.

My report was turned in without revamping; its briefness being its only virtue. The rest of the morning was wasted because I could not get a truck to off load all the fishing party equipment off the Tarut, a job I do not relish. Jim was kind enough to see what he could do about getting me cleared for a possible trip to Bahrain. The ground temperature outside at 12:15 today was 50°C and the air temperature 42°C, in other words "wadjit" (it is found) hot. I also wrote a letter to Dr. Blegvad, with a written copy for Dr. Schultz. The truck and car situation is a lot worse than a few months or rather a month ago; so I was unable to get a truck to off load the fishing party equipment. I even went down to Al Khobar but could find nothing there. But I spoke to the crew and rescued some cigarettes for Jim. When Gurley got back from Ras Tanura he said formalin had leaked down in the bilge; so it was agreed that the best thing was for me to return to Ras Tanura. On the way, we saw a jackal (about the size and build of a small coyote) cross the road around Qatif. The strong south east swell had rocked the boat considerably, and the big bung was not tight so formalin had leaked a little out of there. Abdullah and I moved the boat once during the night because it pounding against the pier.

June 1 - Light east winds at dawn. After trying to phone Jim at Shahrhan and see Mr. Brown (both unaccomplished missions), I decided to troll around east pier. We left the fish pier at 9:15 A.M. and threw over the red & white & orange & white jigs. The wind was light from the east, sky cloudless. Tarut Id. visible, but Jebel Shahrhan and distant shores very hazy almost invisible. White terns abundant on Ras Tanura point. There are greyish terns like the white ones only they appear dirty underneath. Possibly it is caused by oil from tankers. There were 3 freighters (French & English) tied to east pier, and six at anchor. At 11 A.M. at buoy 7 we caught one barracuda on the orange & white jig. The wind was very light from the east. (When going thru the town of Al Khobar yesterday I noticed almost no flies a complete reverse of the situation in March. I had been given to understand that there were more in hot weather. Even at west pier the flies do not seem to be as bad as they were a month or so ago. About 11:30 A.M. a light northwest shamal came up. We got back at 12:15. I talked with Mr. Brown about arrangements for cleaning the boat which was more or less up to us, but with a short handed crew I decided to let it go. At 2 P.M. I lifted my 3 eel pots which were set just south of the new fish pier about the end of the submerged drain pipe at 1½ fath. to 2. There were 2 moderate sized *E. tavorina* (1 each in the cloth funnel eel pots) also 1 *Plasiops*, 5 wrasse, and 2 *Lethrinus nebulosus*. The tide was high about 1 P.M. About 2:30 P.M. we headed for Za'al Id. where I hope to catch 2 low tides. At 2:40 P.M. we caught a small barracuda with near ripe ovaries. We arrived at Za'al shortly before 3 P.M. Shamal winds are increasing slightly. At 4:20 P.M. most of the distant land was blotted or blurred with dust, and strong shamal winds were blowing. I set my three eel pots off the S.W. corner of Za'al on hard sand & weed bottom. All the long rooted gulf weed had disappeared only small stems and roots were left; apparently

the bloom has fruited and gone by. The water ebbing out of the bay was almost hot, and it was very murky, and I found no suitable place where I could use poison. "Swede" Bonill arrived on the Tarut near sundown, and they had caught one small charad on their way up from al Kholat. That evening we fished over the side with a light and a new addition was one charad (Sorosoma). The Triacanthids were also present, large and small halfbeaks, large & small atherinids, and small dromomieds. About 12 P.M. we finished baiting and setting a 20 hook set line with 2 anchors and using needlefish & halfbeak for bait. I was calm when we set the lines, but the wind came up again before dawn, and increased to strong shamal by the following noon.

June 2 - We got up shortly after dawn this morning, and I did some poisoning in the same coral rock area as before S.W. of Za'al. Because the tide was still ebbing the current dispersed the poison too fast, and only a few small fish were recovered scattered over a surprisingly wide area. The tide was actually ebb around 7-8 A.M. When we found our set line we recovered 1 shark ^{Chiloscyllium} 3 hooks and one anchor; the line had been cut probably by another shark. If we had used $\frac{1}{4}$ inch rope, as Ed suggested at one time, it probably would have been alright. Also if there were 2 instead of one buoy. But that time of night, we were not open to the best ideas. In the eel pots, I caught my first gerard (caught by an eel pot), also a small *L. miniatus*, *Plesios*, and several blennies. ^{*Petroscirtes punctatus*} We grappled some and dived for the other anchor but the strong tide and wind was prohibitive. The boys speared a small sea turtle but because of the origin of its capture I deemed it wise not to keep it (namely the fish trap which I told

69
them to keep out of. A small boat with 4 men operating fish pots came by this morning and from 11 pots they had nearly 50 lbs, or a bushel of "sawji arabi" (*Siganus signatus*) and a few small groupers, porgies, etc. But the bulk was *S. signatus*, 6-8". Fishing boats were numerous around the bay this morning.

The shamal was light in the morning increasing to heavy by noon with white caps on the bay and with gusts.

Yesterday afternoon, I almost lost an eel pot, the boat, and almost broke an ear (it broke the next day), by going down to the "sand" Id. which is on the south side of the channel about $\frac{1}{4}$ to $\frac{1}{2}$ mile south of Za'al Id. The tide was unbelievably swift and treacherous near the Id. and the water at least 3 fathoms right up to the edge where branch coral and other hard looking stuff have into sight. I decided that it was best not to land under these conditions. My eel pot almost disappeared in the current, and I had a hard time making it back to the boat.

Altho the wind is stronger this afternoon, the horizon is clearer than last evening. "Swede" left on the "Tarut" to get fixed up in town with his stuff. We headed back for R.T. about 1:45 P.M. with him out behind. I spoke with Stewart over the phone and expect he will be up Friday night, and I telephoned our order to Tex Evans, and by that time "Swede" returned. Hamed relieved Youssef at engineer today; so I trust we will have a change for the better. Getting the boat cleaned & caulked and the crew's rations are still current problems.

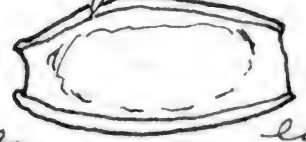
At 5 P.M. we returned to Za'al from West Pier. The shamal was still strong with dust on the distant horizon and scattered cirrus clouds. We saw a small ^{10th} albacore jump clear out of water near the boat. It seemed to be an albacore because its pectoral appeared to be very long. Terns were diving at it. There

were also other gillnets in the distance all about 2 mi. north of west pier. There were also at least 20 or 30 ^{P. phaeogena} porpoise (grey helmet type) playing around just before we saw the albacore.

Around noon I saw 2 large black and white birds like oyster catchers flying north near Za'al Id. We reached Za'al about 7 P.M. and around sunset the wind flattened out to almost a flat calm. When the tide started to come in white stringy foam floated by probably swept off the flats. We used the light over the side, and caught many 4" halfbeaks and a couple of young *Chlorodon*; "Swede" caught an 18" snake with a dark black head. There was a 3" *Periopthalmus* inside the snake in recognizable shape and color. We made the mistake of cutting up the snake for bait for a set line; it was absolutely worthless. We also used some halfbeak for bait. We saw some *Trisopterus* again. We got the set line set with anchor and cement block by midnight. ~~At 6:30 AM~~ The wind came up some during the night and blew quite hard for awhile. There was a beautiful sunset this evening with red clouds.

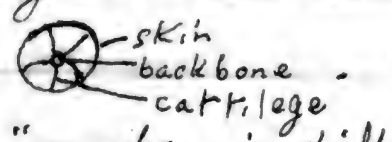



June 3rd - Fair with a light shamal at 6:30 A.M. We caught one *Hagaseh* ♀ 65 cm. 1½ lbs. with egg yolks inside and empty stomach. The crew does not eat them, but will eat "Rand". My eel pots yielded only *L. miniatus* & *igg fashur* & *Plesiopterus* (brown). They were set in 1 fath, on much sand bottom with sparse grass. We did not have time to grapnel for yesterday's line and grapnel so we left a line and marker. We got under way at 9:05 A.M. I took a picture of the fish trap with Za'al in the background. Tide just about dead low. We put on supplies about 10 A.M.; the ice had been waiting an hour. We got a glimpse of Durley and arrangements are being made to get the boat cleaned; though it may be part of a ruse the captain went to Bahrain this afternoon to get fish oil for the boat. "Swede" went into Ras Tanura to round up some equipment for fishing gear, and in the afternoon got some floats together.


71
I spent sometime on the phone to speak more at length with Durley. I also spent sometime looking up Mr. Brown to discuss the boat situation. Being "coolly pay day" there are no helpers around this afternoon so I decided to head out again for Za'al Id. About 3 p.m. we left the fish pier with ^{moderate} light shamal wind. It was blowing hardest around noon today. We arrived at Za'al Id. at 4 P.M. and the temperature in the shade was 36°C. In the sun on the museum boxes on deck, it was 42°C. We trolled 2 lines but had no luck. I set my eel pots in the heavy tide off the rocks on the west end of Za'al.

I baited a set line with pieces of "Hagaseh" the ♀ we got this morning. The tan skin was as rough and tough as the hardest grade emery paper. I found to my surprise 2 skate like egg cases with embryos eggs inside 2½ by 1½"  is evidently this is a small egg laying species. Another egg apparently became free or was free from a case; it was one I noticed in the morning. The the shark had been lying around all day the eggs were orderless and in good preservation and were saved as U-48-85. It was almost a calm when I set the eel pots, and also when Abdullah (baker) and I set the set line just before sunset.

After supper from about 9 to 11 P.M., 4 of us went ashore with spears and lanterns to Za'al Id. Except where the fish trap is and the bottom is mud; at low tide the bottom is hard all the way around the island with small pieces of sand rock ("hara"). Walking is difficult, and reining not advisable except at high tide. I speared a 6" toadfish and saw *Sillago*, gut gubs in abundance, and the smaller dark brown crabs. On the north side of the island there were a lot of large fish jumping around when they saw the light. They were silver and 10-12". I think they were mullet, because I saw one, but I am not sure. Hamed caught a 12 inch sole with a yellow lining around his dorsal & anal fins. It was quite chunky, and ex-

trremely shiny when alive. It just literally dripped slime in a way, I have never seen before. Also we caught several small porgies and gerrids which were blinded by the light and were easy to pick up. Hamed caught two baby terns which I also kept. The night was clear and rather humid with wet decks and little wind.

June 4th - Clear at dawn with light shamal winds. I could not see the set line buoys so we are waiting for ebb slack. About 9:40 A.M. the boys recovered the set line when the tide slacked. There were no fish, yet only shark skin was left, the meat was all eaten out from the skin.  ^{skin} ^{backbone} ^{caudal fin}. Most hooks were cleaned. It would seem that "Hagareh" makes indifferent to poor bait. At 10 A.M. the Tarut arrived with 2 books for Jim from New York. It is very clear and hot with almost a flat calm. 32°C in the shade. 49°C in sun on wood museum box on decks. Water temp. 30° off Za'al at 11 A.M., and 29° off the boat. About 1:30 P.M., we left Za'al and trolled 2 lines. There was a breeze from the east. I decided to return to Ras Tanura tonight, because Abdullah, captain, is supposed to return with paint etc. from Kanoos. This morning I saw at least 8 fishing boats fishing for pots ("gerungir"),  about 16 ft. long and with 4 crew. One with a long  staff with a snare, 2 rowing, and one usually overboard ready to dive to place the pots. They use sail to get to the grounds. Quite a few fish off the long bank west of Za'al Id. We continued out beyond east pier to buoy 7; Shahrhan and Jebel Shahrhan were visible in the distance. We saw one large school of "jibab" about 3 mi. N.E. of east pier. They seemed to be 18 to 24 inches in length, and ^{terns} ~~gulls~~ were diving on top, a couple of smaller schools were passed later. The sky was cloudless. I also saw several long fin  black porpoises. The Palestine barely inder along these days. Birds seem to be tamer here but it may be just the heat, because yesterday afternoon

downed past 2 cormorants on the rocky west Pt. of Za'al Id. One finally flopped into the water and swam lazily off. The other just sat for a long time; it must have passed easily within 50 feet of them. Then also the crew are always catching terns and birds with their hands both day and night; may be it is just because it is Arabia. I lost one of my arab sandals overboard returning from buoy 7, which is akin to stark tragedy; I had grown very attached to them.  We reached the fish pier about 7 P.M. with not even a strike on the old raw jig and plastic feather. I went into Ras Tanura this evening to mail a letter to Lucile, get a change from the pier, eat, and see the movies which are a relaxation because of contrast over here. It was hot and a flat calm all night. Abdullah returned last night with a letter from Kanoos.

June 5th - Up at 6:30 A.M. In the shade it is 36°C. It is boiling hot at 7 A.M. Nice cool of the morning. "Swede" arrived shortly after 7. Flat calm. About 8:00 a light wind came up but that soon died down. I spent an hour or so trying to get Dunley or Stewart on the phone, but no luck. Because the crew was starting to clean the boat, and were going to beach it tomorrow morning, I went to Shahrhan to straighten up my room; so I could leave bag and baggage at a moment's notice. I mailed a letter for "Swede" and mailed 2 films air mail to Schultz in the States, 8½ reals. I had a good ride to Shahrhan with a good car and driver. When I reached Shahrhan I could not find Stewart, and Ed I assumed had gone to Ras Tanura. I wrapped up my specimens which I collected the first month at Shahrhan, and prepared them to take back with me to Ras Tanura. It was clear, hot, and cloudless today. I saw Ed about 7 P.M. and handed him Kanoos' letter re: the "Palestine", and I returned to Ras Tanura on the

8 P.M. bus. It was glass calm all night, and quite hot.

June 6th - There was a light east wind shortly after dawn, then at 7:10 a sudden gust of dust ushered in the shamal, which soon leveled out to a steady breeze. Sky clear & cloudless. The crew ran the boat up on the south side of west pier, just as the tide started to lower. They did a good job cleaning the bottom of the boat during the low tide. "Swede" went out with the Tarant about 7:30 A.M. and returned at ^{11 A.M.} noon trolling. The shamal was quite rough and they didn't even get strikes. I took a can of fish into Ras Tanura storehouse where they are loading in rails at a great rate. My boxes will probably soon be covered up. #5 box & tank were brought + #7 tank which was interchanged with other 8 gal. tanks of fish. About 11:30 A.M. Durley appeared and we looked over the progress of the fish plant which he now expects will be ready by June 15th. We all ate lunch at Ras Tanura, and looked for Mr. Evans in the p.m.; we finally found him, and found out about the removal of the Emir's party Arab food from the Tarant. I ordered 6 15" - 35" galvanized drums for fish specimens. Steel drums rust too quickly. Ahmed lifted my eel pots yesterday, but there was nothing, but when I lifted them there were 2 ^{bal'ul} Hamen (1-9½") in an eel pot which got wrapped around the pipe line, a red ~~Mollus~~ and a *Plotosus anguillaris* in another, mafi in the 3rd one. We went to "Had al Turk" for the night with both boats. The shamal lightened slightly nearing sunset. The front glass well got smashed today; so it was repaired by Arab carpenters with ply wood in a passable fashion. After supper, the 2 Abdullas & Yusuf Swede and I went ashore and seined with the 100 ft seine. The 2 Abdullas would bunch up the net and get out crabs parallel to street then they would walk quickly away from each other and straight inshore it worked well. They caught over a half bag or 15 lbs. of fish consisting of 2 ^{species} Gerrids (1 10" S.L.)

75
several *S. signatus*, red Mollus, common Mollus, Chelon, *Terapon*, blunt nose porgies, porgies (silver), 1 sole, atherinids (large), *Sillago*, scorpionfish small, spot herring; it was hard to say which was most abundant. Swede and I tried later but we didn't do so well covering the same ground. *Chanos* (with saw bug on head) & *Apogon thorstoni* were also caught, & *Lethrinus miniatus* & shrimp.

June 7th - All night and early morning the shamal was very strong and gusty. I set the eel pots overboard last night, and got about 40 *Terapons* in the one with a wire funnel, and one or two in the others. The only bait in the wire pot were live hermit crabs. There were also several small *Apogon thorstoni*, and one *Parapercis* 3 fath. of water and much sand bottom. A 25 hook set line baited with fresh bait last night and set near the eel pots yielded nothing and we lost one hook. Crabs and small fish probably ate the bait off. We got started about 7:45 A.M. bound back for west pier. Weather cloudless sky strong Shamal, but less gusty than last night. At West Pier, I tried telephoning Durley with no success, but managed to get an order in for water (its like pulling teeth only worse). "Swede" did extensive carpentry on the boat making shelves for Ahmed; also the lines and nets were set out to dry. The Fish pier is an ideal place now to dry nets. We spent most of the afternoon trying to get water, the same old story, delay and more delay; finally we got it about 5:30 P.M. The truck never did come to take off the party rations; they probably drove around west pier and never looked further. We have rather incoherent orders to proceed to Al Khobar and wait. We will go tomorrow, if weather permits. The shamal toned down slightly in the afternoon. We proceeded about 1¼ miles north of west pier to a sandy spot. We saw a large turtle at least with a 3 foot shell off the fish pier again. By 7:20 P.M. the shamal had died down to a very light breeze. ^{at} ^{pt} Um Rahima, sand hummock near road. After supper we went ashore again to seine with

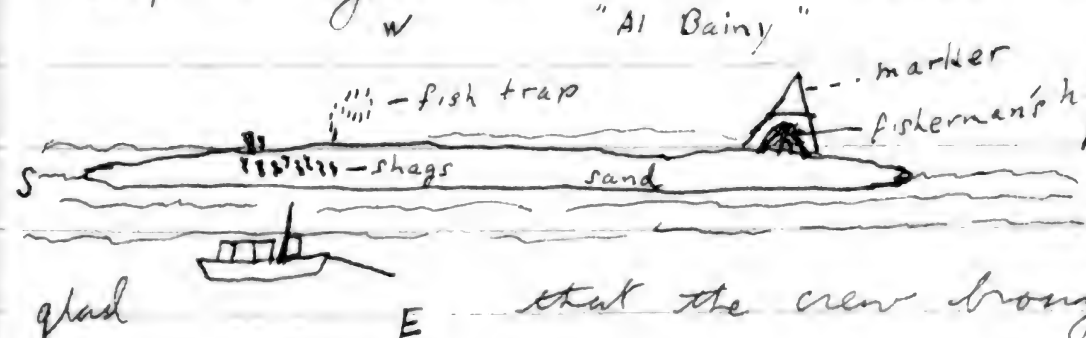
wadjet terns here &
the crew. Except for one good haul, the other four or five were poor. We got about 3/4 of a bucket of *S. sigamus*, *Eutjanus* with the spot, gorgies, silver, fashan, silago, Chelon, Chanos, shrimp, Mont nose porgies, several flatfish, silversides, Terapon, goatfish (2 species), geroids (1 species), scorpaenid (fargaleh), 2 of the rarer apogonids. Swede stepped on a small scorpaenid (1 1/2") and got a stinging pain in his toe and foot which finally spread to his groin, and bothered him for over a half hour. I watched one



wiggle itself down into the wet sand with its front dorsal spines erect, and its pectorals spread to give itself steadiness. Abdullah caught the rascal, and they were all sure it was the fargaleh, and the crew handle them with respect. According to them they do not exceed 8 inches in length. We had a flat calm to seine in, and the spot tailed snappers were the most abundant fish. Swede said it felt something like a bee sting. When we got back to the boat we saw several shark outlines swimming around. Spearfishing failed, but Hamed and Youssef tossed over fish lines near the light, and bang bang 2 were landed on deck. One was a good 2 feet the other about 20 inches, U-48-89; they looked like typical *Echeneis naucrator* with the black stripe on the side, but they did not have the white tipped tail of the Long Island species. The shamal came up during the night sometime, and was blowing hard from 2 A.M. on, and the boat was pitching back and forth.

June 8 - Clear at sunrise with strong shamal winds. The set line was minus 3 hooks, and the 4th was straightened out; probably a large snake. The crabs were thicker than sin last night and we were about 100 yds. from shore. The snakes were also thick. The bait consisted of some anchovy. We got under way at 7:30 A.M. bound for west pier. At 8:25 A.M. We left west pier for Al Khobar at the Palestine. We reached Al Khobar at 12:45 P.M. The shamal increased considerably about noon, and Al

Khobar was a haze of dust, and hot winds. There is a long shallow bar with short grass on it opposite Dammam. At the south end of it near a buoy I saw a genuine osprey. This afternoon, we went ashore and met Burley who came down to see us, and we got Ahmed straightened out on pay & letters, and got in a food order. ~~Stopped~~ ped in to see Jim, and he said he might be over to Bahrain in a day or so. We left Khobar pier at 5:45 arriving at "Al Baimi" at 6:50 going almost due east. There was quite a shamal at Shahran & Al Khobar with the dust blowing over the road. By 5:00 p.m. the shamal had abated slightly. About 1/2 way to Al Baimi we passed a solid band of fupul jellyfish (the solid white large ones. They looked like a strip of solid ice chunks in the water. They were north and south as far as the eye could see and the band was about 30 ft. or 40 ft. thick and as deep as you could see. Elsewhere they were abundant. It



was an interesting island to anchor by. It was inhabited by terns and cormorants. I am glad that the crew brought us out here. The hills of Shahran could be seen dimly under the setting sun, and the outlying isles of Bahrain could be seen to the east. The shamal continued all evening & night. Even so we set a set line & 3 eel pots, and seined on the isle. I also caught some pipefish & yg. Siganids with the light over side. Just a few Attarinids and small porgies & mullet were caught on the lee side of the isle. Cyprinodon shigan were present on the windward side. There was sand and considerable current all around. There were lots of large ghost crabs on the beach all around the isle. And the cormorants did not move much when I walked near them.

July 9th - Swede and I were up at dawn this morning to lift

the pots & set line. Except for hermit crabs, it was a blank. Only a little bait was eaten off. There was dust on the horizon. Swede left with the "gulf" and gear on the "Runt" about 7:20 bound for Al Khor & Ras Tanura. The wind was nearly calm at dawn, but started to pick up by 7:30 A.M.; I also sent a letter off to Fucile via Swede. I shaved with Ahmed's razor and we set sail for Bahrain at 8:10 A.M. leaving Al Bairey ~~aimed~~. Swede said he saw a flying fish yesterday. Light shamal wind with haze all around, probably dust. Naaiyat shallow area off port bow with 2 fish traps 9:05 A.M. course S.E. At 9:15 A.M. we passed near Tidda a strange rock isle may be 100 ft. high with a jail there. I took 2 pictures. It was about 1/4 mile long, and the oil pipe line goes by it. It is quite a

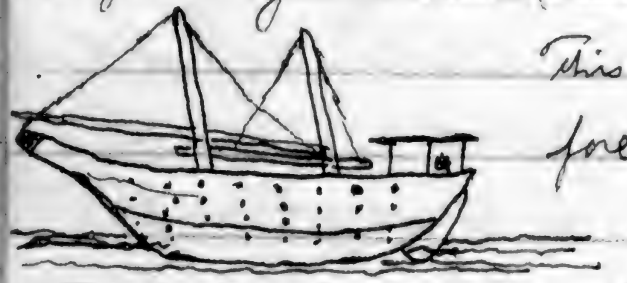


contrast to the sand isle we had just come from. At 9:30 going due east we hit "Um Subon", a long low island with palm trees and one nice looking cement building. We went around "Um Subon" and the water was very clear about 2 fathoms in depth. Some sand rock on the shores. No good collecting places apparent, no coral visible. The north end has the house & date garden. At 9:45 A.M. the shamal winds picked up to a moderate breeze. The coast of Bahrain is about 1 mile east of "Um Subon". The stake fish traps appear smaller and a different shape than those in Saudi-Arabia. 10:05 continuing north along west coast of Bahrain. White jellyfish abundant in the water. A shallow sandy area Su ali is to our port with fish traps 10:10 El Rukhayat a rock channel marker? to our starboard; course N by E 10:15 A.M. shamal stiffening to small white caps. About 3 miles offshore and Bahrain is hazy. Air temp. 35°C in shade with breeze blowing. It feels comfortable. 10:45 A.M. "Luthor" channel marker cement. 11:05 A.M. bearing due east along Bahrain coast numerous date gardens. "Mil et al ay" 11:15 high spot on shore with ruins? "Had al Seye" shallow

area to port. We arrived at Manama pier at noon. There is no dust in the air here. Hamed took me to the Aranco building, and after long waiting Mr. Braddich appeared long enough so that I could give him my passport, and he got quarters for me at Babco ~~pt~~ Owali. I do not think I will go there now, but may be later. I will stay on board tonight. The shamal continued moderate to sundown when it became very light. It was an interesting spectacle to see at least 200 or more booms and jalboats in the Manama harbor. And to hear the musical rhythmic chants of sailors rowing their long boats to and fro from their mother ships to shore. As Hamed and I walked down Manama pier we saw baskets of several hundred pounds of dried fish supposedly from Persia. They were split right amid ships with each side laid open. The meat was dull brown but without flies. Most common were gim (fool) Scarus dussumieri 12-14". Next were shari Lethrinus, then E. taurina, and E. (black with white spots, then black labrids Choerodon? 8"-10". Also were several type of thin fishes. Then I rested for awhile and later

Hamed and I went to the fish market where dried and fresh fish were present. For the first time I saw Scomberomorus guttatus with the dots on the side (though 2 species are recognized apparently the same name is used. All specimens were split and dried and some were said to have come from Jubail. Both species were present for comparison; gill rakers could not be counted. Siganus ^{javus} ~~punctatus~~ was ² ~~very~~ abundant, whereas S. siganus were fewer. 1 bushel of dried anchovy were called "oom", several dried mullet, and a large 3 ft. dried charad. There were some small porgies and snappers, and dried geroids, but otherwise nothing of special notice. Some of the oars are fancy here round pieces of metal on a pole painted white with blue borders. The largest ^② crews consisted of 8 men rowing in unison. I wish I had taken a picture of one in particular. Children and men run

around chewing bits of dried fish, as though it were candy. And they apparently enjoy it. Mr. Kanoo, Jr. whom I met with Burley in April came out on the pier to say hello; and later in the afternoon Mr. Kanoo, Sr. came with his sons on board to say hello and pay a visit; we had a pleasant conversation, and he invited me to stop by in the morning. I also may be able to borrow a "galy" for a trip to Fasht al Farin. I am also contemplating a bicycle trip around the Id. I bought a pair of sandals ("rial") for 7 ruppees, and #10 sneakers for Swede 8 ruppees.



This illustration gives an idea of the boom with its large foremast, odd phallic bow sprit, high sides and straight sharp angled hull. They are about 60 to 80 feet in length. I went to bed early tonight because I couldn't keep awake writing a letter.

June 10th - I was lazy this morning and lay in bed till 6:30 A.M. By that time the carpenter had been working at least a half hour. Saws were going and hammers ringing on the other boats near by. But I really had one of my most comfortable nights sleep on this old waterfront, because there was a fair breeze off the water most of the night. Altho I have an audience for meals they chat quietly and come and go. It was 31°C at 7:30 A.M. on the "Palestine" at the waterfront.

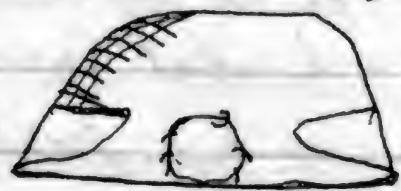
I went to visit Mr. Kanoo, and the Emir's uncle also came in, and we talked a bit about fish. Mr. Kanoo had a contractor (for fish) come but it was too late for many fish. However, there was the same dried fish, and a few fresh small porgies with the usual cloud of flies. This afternoon at 3 p.m. I went again to the market, and there was a fresh 16" *Lotjanus* with rich red fins and pinkish silver body (it was not of course well enough preserved for a specimen, and ran about 3 lbs.) There were a number of *Lethrinus nebulosus* possibly 3 lbs in wgt. All the *Lethrinus miniatus* were very small 4-5". A bushel

S. rigae was present in place of the *S. punctatus* of yesterday. Small fashan, and other porgies were present. Some of the dried fish if not all of them were the same ones as yesterday. The fresh fish apparently sell faster. I walked along the water front and saw ships carpenters' laying new keels from rough hewn tree trunks. In fact one man was sawing lengthwise thru a log to make a prow. A good deal of ulva is in the shallows along the water front with *Cyprinodon* digress numerous in it. I saw 2 natives with ulva in baskets. I also saw men and boys carrying sea rock on their heads to the street from the boats. I went to see Mr. Kanoo at 3:30 but he was not yet in; so I went to Aranco house to call Mr. Chubb, 165 J, Ouali. He was not in, but I found out that Jim had come over today, and was at the B.O.A.C. house; so I stopped in to see him and we talked until near sun down, and then I went back to the boat to eat, and brought some last minute things, such as wood shoes and paragonie, back to Jim. As I was surprised to see English sparrows at Fasht al Farin, Fasht Id., I was also surprised to see them at Bahrain & Shahrman. The weather was humid hot and calm today. I wrote a letter to Lucile this evening.

June 11th - The carpenter arrived at 6:00 A.M. today. There was a light breeze from N.W. but the decks were wet whereas they were dry the night before. It is now 6:30 A.M. and the sun is very hot already. Between 6:30 & 7:00 I saw a few small reddish cumulus clouds on the west horizon. A moderate shamal came up starting about 7:30 A.M. from 8:00 - 9:00 A.M. I rented a bicycle and went across the bridge to Maharab, because Abdullah said a fisherman was coming for me when the tide was out so I came back early. I visited the Manara market and there was nothing but small *Lethrinus* barracuda etc. about a bushel in all at 7:45. There is a channel

under the bridge near the toll gate at Maharah. The bait 4 to 6 lbs or more each were very abundant here during the outgoing tide. A boy was fishing with a 4° hook and thin wire leader and light line. He had some small barracuda and leatherjackets for bait. He would churn the bait with pieces of fish and then throw in the hook. He had one in a basket, and I saw him hook and land another. Most of the time, however, the bait were very shy of the bait on the hook. I also saw Lepidion dispar in great abundance in the shallows along the bridge. I also observed small citharinids on the other side. The bottom along the bridge was hard to make out some weed, sand & scattered rocks. I saw also a large school of large citharinids between our boat and the Panama pier. Maharah is due east of Panama.

Hasane Cumoys, a fisherman friend of Abdullah, captain, arrived about 10:30 A.M. in his 16 foot boat to take me out when the tide was right. We went over some of the fishes in Blegvad, and he gave me the names of some. We left about 11:30 A.M. in his long boat, and he speared a 14 lbs. sting ray, U-48-93, and took me all over the bay between Panama and Maharah. It was just about a flat calm with a boiling sun. at 7:30 A.M. it was 38°C. The bottom was mostly sand & "hashish" (ulva) also some bare spots, some rather large coral rock formations which were roundish with a few small brain corals. Then there was some grass and much sand area near shore. The rock areas were called "fashit." There was also that much sand bottom with spirt weed and those large sea anemones, "muyorish"? His pots were flat on the bottom and round with sort of a flattened round shape above two funnels, and an opening door. They were about 2 feet high by 3' in diameter. Most of them were in a fathom of water. We looked at 5: #1 1 grouper 1 Plectrocygus, 1 toadfish; all that was in the trap. The traps are



82
baited with ulva and mud beat up into a mash with a flat stone. Before we speared our stingray we saw another one swimming away from the boat. #2 trap had querequfan, buttone, latil, and S. siganus about 5 lbs. of fish in all. #3 no fish. #4, 3 Scalopsis not lifted, #5 near the "fashit" had one Chelonodon. Around the "fashit" we saw Plesionops and black pomacentrids, and one Mayasch. Then we started to see several freshly dead fish on the bottom mostly 4" inch Lethrinus nebulosus, one or two Sargus noct, and a couple of querequfan. A certain dark brown algae growing on the rocks is known as "gusordi"? This poison comes in a dried berry form and is mixed with "oom" into a mash, and fed to the fish. It comes from "Calacut" and is known as "sim". Abdullah brought me about 4 lbs. of it for 3 rupees the next day, and I saved some for specimens to tray and determine the species of plant used. Apparently it is very effective. It continued calm all day and evening. Hasane did quite a bit of diving to get the traps, and also pick up dead fish. Also he got a sea urchin "slity" for me, the short spined form. I saw some tiny flying fish on the surface in 6 feet of water about 1 mile offshore from the channel under the bridge near the Maharah toll gate. I saw a couple and finally caught two 15-20mm. in length. We returned pretty well sun baked about 3 P.M. About 4:30, Mr. Khalil Kanoo came in his Lincolner to take me to one of his date gardens to show me around besides dates he has grapes, papayas, mangoes (starting), tamarinds, mulberries, citrons, oranges, pomegranates; vegetables such as melons, onions, mint, cucumbers, etc. They are irrigated by Artesian wells. He also took me to a little stone house by the sea, from the roof of which we could see the sand beach, the calm bay, and the palm stake fish traps. We saw 7 fishermen come in with one boat and fish traps and they had a scarce 1/2 basket

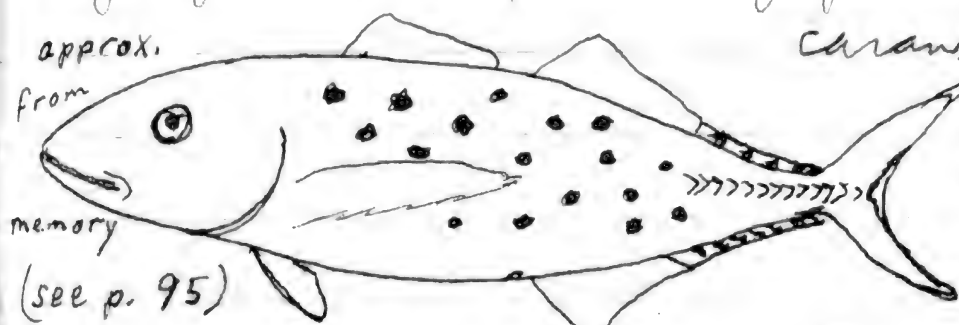
of L. siganus and some L. nebulosus, not much of a catch. The "sawfee" L. siganus is considered very good eating. The fish traps here have a leader, hearts, and traps rather than the V shaped traps over in Tarut Bay. I believe this type in Bahrain is more efficient in that it probably catches more fish which are moving parallel to the shore.

Cyprinodon diopis were very abundant along the sand beach, and also in the drainage ditches and wells of the date garden. In an artesian well with cement around it there was considerable growth of sharen dark filamentous blue green algae. The water was quite cool. I saw several frogs in all. Flies are more abundant here in Bahrain than at Saudi right now. This late afternoon & evening was pleasant. Also the beach here was covered with cuttle bones. This garden was about 1/2 way between Manama & Owali. I fished a little over the side tonight, and caught only small atherinids, and speared a cuttlefish with a pole the tide was quite high. Almonds were also present in the date garden but not yet ripe, also there was a type of bean trees where only the pulp around the seed is eaten the seed is black, the pulp white and the bean green. It recalls to mind a similar tree beeson in Puerto Rico.

June 12 - a hazy sky at dawn and the deck was not wet from dew at 6:00 A.M., about 7 A.M. a moderate shamal sprang up and blew making it comfortable on the boat at 37°C at 9 A.M. in the shade. After writing notes, I decided to take a trip out to Owali to meet Mr. Russell Brown to whom my letter was addressed. I met both Mr. Brown and Mr. Crow, manager and asst. manager; and then Mr. Henry Chubb was called in, whom I wanted especially to meet. Henry then took me to his office in the sanitation dept. and we mapped notes

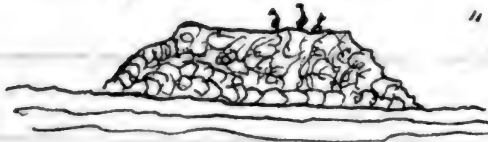
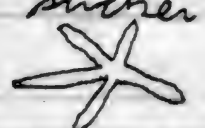
until nearly lunch time. The food served at Babco seems very good. The dining room is cleaner, the waiters better, and everything else compared even with Ras Tanura. Henry picked me up again at 1:15 P.M. and we went into Manama to the boat where I picked up some things.

We stopped by at 3:30 at the fish market and saw 4 lb. Lethurus nebulosus, another chakka, and fresh rabbit, and at last I lay my eyes on the famous gafdar which turned out to be a large caranx with a seriola like mouth and prominent black dots on the sides.

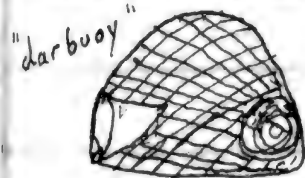


The specimens were about 6 or 8 in number, and all around 30" s. l. and were fairly fresh looking. Then we went on towards Owali, and stopped at a salt marsh just between the date gardens and the desert by a bridge. The marsh extended towards the Gulf on either side east and west. The temperature of the air was about 39°C, and the warmest mud pools a scarce 40°C. There were clumps of tiny mangrove with small yellow flowers, and very small sprouts sticking out of the mud. The leaves were rounded shiny and rather small with smooth surface. The desert between Owali and Manama has many hummocks with small patches of weeds in places and one large hill and several smaller ones. It gives the appearance of great expanse with none of the movable sand dunes. I received very nice hospitality at the Chubb household from Mr. & Mrs. and we went to the movies in the evening.

June 13 - Clear with continued moderate shamal winds, but clearer sky. This morning, I went into town in Chubb's truck, and got my passport, and visited the fish market again. There was the same old stuff plus one 2 foot catfish (Arius), and a bushel of small 3 inch. goatfish with the yellow stripe down the side known as "baussay". Small 3 inch barracuda were "Kalie". One fellow had some

we begone pieces or fillets of salt mackerel, which by the ~~heavy~~ stripes looked most like *Euthynnus alletteratus* the stuff was called "malhay". Also a weird looking dried porogy was called "burtam". It was stout with big scales and prominent teeth, a black grouper was also called burtam, I guess they just don't tell the dried fish apart. The time was about 10:30 A.M. We got ready to go about 1:30 P.M.; Chubb arrived at 12:30, and took a little more lunch with me. We left at 2:30 p.m. the gulf we left behind because it sank and had no oars. There was a moderate shamal with white caps, and we headed about MNW till 3:55 P.M. we passed abean  "Ceneega jedum" a small rocky islet may be 20 feet high and 120 ft. long with comorants on top then we changed to due north till 4:30 P.M. then N.E. by E shoal areas with sea weed bottom. At 5:45 we arrived at Fasht al Jarim which is no island but a large shallow area with sand bottom and patches of small mostly dead coral. About 4-6 feet of water at low tide. Henry S. Chubb and I went over board to look around with glass masks. Henry saw a small mayasch under a coral head which looked like an eel. Abdullah dove down and caught it by hand, U-48-97. We also saw *Pomacentrus* (black), *Pterops nigricans*, *Scolopsis personatus*, *Scolopsis* with the stripes, *Lutjanus* with the spot, *Periophthalmus*, *Sargus* nest, *Sparus bifasciatus*, green wrasse, and *Pomacentrus* ^{maculatus}. The species were few and the fish small and not too plentiful. There were two other fishing boats there, but they had no fish. In spite of a continuous moderate shamal all night we were in fairly calm water because the Fasht to windward of us was shallow, and probably broke the sea. In the evening, I caught some larval fish, most of the bait was herring. I saw 2 snakes, and one shark sucker, and a bill fish. There were also a couple of snakearmed  smooth starfish which were tan colored.


87
June 14 - Clear at dawn with increasing strong shamal winds. We got under way at 6 A.M. and reached Manama about 8:30 A.M. A couple of porpoises followed us along the way. The boat rolled quite a bit, and I imagine Henry was glad when we reached port. The stench from the dhows was so great on the west side of Manama pier, that we moved around to the east side and anchored just a little way off the pier. Then a barge came in and we moved out when I lay exhausted below; then without Abdullah captain I made the mistake of letting Yusuf & Hamed take us back into the pier. After smashing against the side of one dhow, getting tangled in the line (anchor) of another dhow and scraping our side against a steel barge, they finally decided to move to Muharrag where in time we picked up both Abdullahs. I gave my watch a half hour bath in salt water yesterday, then fresh water, alcohol, kerosene, and Abdullah got it fixed for 3½ riyees. I left word with the Aranco office that we were still held up in Bahrain. I went for a bicycle ride and broke a chain, then I got another bicycle and went to Muharrag which is flat with a town some date palms and shallow water inlets from the sea. Both on Manama pier and in Muharrag I saw some large wire traps with single funnel and mound shaped. They were about 3½ feet high and possibly 3 ft. in diameter on the bottom. May be they were gulfed traps. When I got back from the bicycle trip, I drank about a gallon of water in a short time. The shamal blew very strong all day, and into the night. We spent the night rolling with the dhows on the dusty and stinky west side of Manama pier. The Palestine is now taking more water than before, this is just a little good news. The shamal at night blew all the dust off the dock on to our boat including splinters of wood. Sleep was hardly profitable the first half of the night. I tried the table down below, and then right on deck.



June 15- Continued strong shamal, the moon was clouded with dust early this morning, and visibility is about $\frac{1}{4}$ mile at most. The flies are a damn nuisance at this pier. The shade temperature is 35°C . The crew found the leak in the boat up in the bow but say they can fix it in Ras Tanura. Now we are waiting for the weather. This morning, I wrapped a collection of fishes and with both Abdallah's help some leaders to small hooks were made. Temperature on top of a kerosene barrel on deck in sun is 49°C . at 11:30 A.M. Water temp. near end of Manama pier 29°C at near high tide. I tried some salt cuttlefish on the small hooks and it looked just like fresh stuff after it had soaked a little water, but there was a lot of slugs getting on the hooks, and I got no bites tho I lost some bait.

I went into town around 3:30, but there were only dried fish, a couple of squashed crabs, and fins from a large jackfish. The flies had moved over to feast on a freshly killed goat. The town all over seemed to stink worse than ever today, but may be it is always that way, and only that my spirits are a little lower now. Watching the long boat crews go by all day is a sight. One long boat had two black Tomtom beaters and a hornblower as well as the humming and chanting. Usually there is one chanter he may be rowing in the middle or sitting astern while the others hum a chorus in unison and time to the oars. The Kuwaitis replace the hum with a curious growl as mentioned in the "Sons of Sinbad". The shamal lessened in the afternoon, almost calm by 5 P.M.; I would like to have moved away from the pier, may be to a fishing spot. Of course, there was not any enthusiasm from the crew on this point. About 7:45 P.M. at dark a breeze picked up from the west but it was light. After dark I tried night light fishing over the side not expecting much, but it turned out to be the best yet: small flying fish, pipefish,

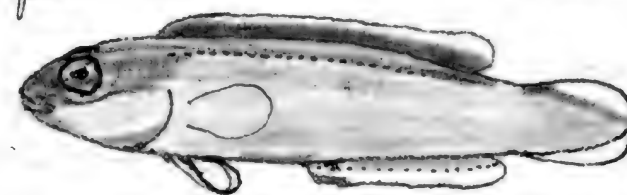
89
young fish, blowfish, and the crowning achievement 3 sea horses about 1 A.M. I had secretly yearned for sea horses "wagg" in Arabic meaning turkey.

June 16- Hard shamal from 1 A.M. on visibility less than $\frac{1}{4}$ mile at 8 A.M. at which time we set sail. Course N.W. by W. 8:10 A.M. outmost shows only visible; Bahrain out of sight. The boat is the dirtiest with dust, I have seen yet. 10:25 Khor Fasht buoy $\frac{1}{4}$ mi. off port beam  1 jalboot on starboard going S.E.; our course N.W. just a hair west of the shamal wind. Horizon still dusty but slightly clearer. Another jalboot off starboard bow at 10:30 $\frac{1}{4}$ mile same course as first jalboot. White caps, gusty wind, waves possibly 2 feet; no detectable smells. We saw a black cormorant about 10 A.M. bringing to mind that most of them are brownish with grey white throats around here. There may be two species or difference in color of the sexes. By 10:50 increasing shamal winds brought almost constant squalls and the waves and small swells may possibly some of them been 4 feet. Some spray came on deck, and the Palestine labored heavily making little headway against the teeth of the wind. 11:40 A.M. course changed to S.W. to follow the trough of the sea and make for land. 12:10 P.M. tug sighted $\frac{1}{4}$ mi. south at Chas chus anchorage. 12:15 P.M. broad 100 ft. band of numerous jellyfish (large white ones again). 12:40 P.M. Chas chus shoal reached and course changed to N.W. The seas were considerably smaller here, and possibly the wind less. At 1:30 P.M. we heaved anchor to pump the bilge and to refuel. It is nice there are so many shallow places. At 2:30 P.M. the sky was clearer visibility at least a mile, no shore in sight. We are probably in the lower reaches of Farut Bay. The water is greyish green here like the water at Rahat & Qatif. We weigh anchor at 2:30 P.M. and are off again for Ras Tanura. 4:15 P.M. after sailing all points of the compass we passed Chas chus sand bar which has a tide pond in the center

of it. But without the rowboat, I decided that it was hardly the place to stay. After changing course from N.W. to S.W. once again we passed Naywa buoy or marker 2 miles on our starboard beam at 6 P.M. Visibility better, breeze moderate shamal, course N.W. again. Very light breeze when we arrived at the fish pier at 8 P.M. The decks are already very damp, and we are in for a calm night. Mohammed brought a weeks collection of fish on board. Ed and Mr. Teltman say the plant is already to open tomorrow, in fact it has been ready the two days of the blow. It will be interesting to see what transpires tomorrow. Ed has gotten us a good room 22 B in Ras Tanura which is certainly more accessible. Both Ed and I slept thru the alarm at 3:00 A.M. Mr. Teltman woke us up at 5 A.M.

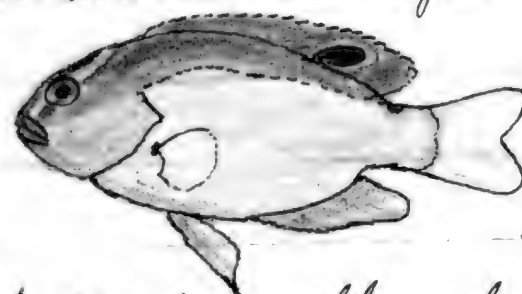
June 17 - Ed went on out ahead and Swede and I came on out around 6 A.M. No fish boats have appeared yet. I saw some fish under some weed and grabbed them. The rest of the morning, I wrapped fish and wrote up notes. No boats came in this morning. It was calm and clear most of the morning. I also read good letters from home. I finished and mailed a letter to Dr. Schultz & Lucile. And rested the rest of the afternoon with a mild case of the runs. Swede and I will be fishing tonight. It was after 7 P.M. by the time we got 2 company nets strung out and on board. Then we went up to "Had al Towh" to fish for the night. We caught ^{each} 1 of two species of *Sceloporus* in the first haul of an old bag seine. The crew dragged that bag seine over some rough bottom and tore it all up; it would have lasted longer if we had stuck to sand bottom. Finally the crew of the Turret and Yuzif caught about a half bucket of fish. Geroids, sillago, *Lotjanus*, flounder, *Platycephalus*, mullet, atherinids, 1 batfish, goatfish (2 species), herring, etc. The weather was fair with light S.E. winds. We tried a 300 ft. big mesh seine but with only one oar lock we could not operate it very well.

June 18 - Cool at dawn or rather 7 A.M. 31°C. There were actual clouds on the western horizon. Light breeze W by N with a sudden light fog at 7:15 A.M. The crabs were kind enough to take the bait off our seven shark line hooks. At 8:10 A.M. we left for fish pier to dry the nets. I caught quite a number of small *A. marginatus* with the dip net under the end of the fish pier. Then I tried some rotenone along the rocks at the shore end of the pier. The tide was coming in rather strong, though it was low. Even so I got a number of interesting larval fish. The most beautiful fish was a small dark blue and vermilion orange pseudochromid



45 m.m. t.l. Another was also seen in the rocks but

was not recovered. A colored pomacentrid 37 m.m. was also recovered; it was blue black above and dull yellow below with black spot on the dorsal, anterior peduncle top, and pectoral top base as indicated in the drawing. I strongly suspect this would become all black as it grew older. Smaller ones than this are a brighter blue above




and lighter yellow below. A shamal sprang up between 12 + 12:30;

before that it was almost calm. One tiny grouper was almost a silon-

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ette with white spots, the distribution of which are reprinted here. I think this is the young of the black grouper or "sbaiti." At any rate it is interesting to find these young groupers also *E. taurina* around 25 m.m. at this time.

Several days ago Swede saw a 7 foot like hammerhead or bonnet shark north of the fish pier, and he thinks that is what cuts our lines and straightens our hooks. The shamal increased to strong about 4 P.M. with white caps in the bay. It is interesting to me how fast the fishes have collected around the new fish pier. Barnacles have already grown solid on the steel dock pilings. Besides snappers, geroids, small fishes, I also saw an 8 inch *Pleurochelys*

pictures in the rocks at the base of the pier. *Plesiosa* and *Concentrida* have also flocked around, and even angel fish. ^{June 19} The shamal was blowing still at 7 P.M. the somewhat lighter. Swede did not appear so I went to the movies, and it was flat calm when I returned to the boat. The wind came up and flattered out about 3 times during the night. At dawn it was blowing strong WNW and gradually shifted more to N.W. as the morning went on. I netted some blennies from weed floating by at 6 A.M., and kept several in a gallon jar of salt water, but they had all died by 10:30 A.M. I lifted the red pots this morning and got the usual species but a fair variety a toadfish, *Lethrinus*, both *Apogon*s, a filefish, *Pelates*, wrasse, *Plesiosa*, and *Parapercia*. I spent a good part of the morning finding Mr. Evans to give him the order for our food and supplies. I finally found him in his office and passed over the order. I went into town for lunch today, and after lunch I roved the sand beach on the Gulf. It seemed to be pure sand with sea weed in the waves being brought up by the shamal, and numerous small shells in two main rows half way up the beach, and some at the waters edge. Pearl oysters, several species of clams, a small black oyster, one or two limpets, one very small mussel, snails, worm shells, scallops, and rough red clams  were among the shells found and kept. I also got a letter today from Mother, with an excellent picture of her and Lucile and also Larry and Marian. This afternoon was used up waiting for supplies and everything happened in as exasperating manner as possible. Still no mechanic came for the light motor and the water did not come till 6 P.M. Such a day just wears one out and there is little to show for it. The wind had lightened by sunset.

I left the pier in the Palestine about sunset bound $1\frac{1}{4}$ north. Swede was talking to some folks, and would have followed in the Tarant, but her batteries were dead. Not knowing the trouble and

93
our light plant being dead and no gulf, we returned at 10 p.m. to find a fisherman claiming he had 4,000 lbs. of fish sold at the customs pier. I was about ready to show my top since I love the "shirkas" like I do a bad case of small pox; it turned out, however, their boat had come to pass customs, and the motor did not start again. So we towed it to the fish pier with the Palestine and I had them unload the fish on the pier. Then I went to get Benley who was just getting up. The only thanks for my pains was to get a bawling out for unloading the fish on the pier which meant the Co. had to buy them. But life is like that here. There was 1375 lbs. of fish which filleted down to 425 lbs. They were caught with shrimp as bait a crab for chum off Najwa in 2 hours around sundown with 15 men fishing. "Gufdar" or "Dufdar" were the most abundant, then parrotfish, several groupers, 2 *Badyscentron*, 1 shari, and 1 *Plectrothychus pictus* (possibly 15"). The largest gufdar was about 10 lbs and 3" in length. About 23 fish averaged 100 lbs. The smaller gufdar have thin black ~~stripes~~ ^{bands} at 12 - 15" which disappear as they grow larger. The black spots varied from few to several on the sides. The head was like *Periola*, but there were a few armed scutes on the caudal peduncle. The parrotfish were nearly rotten (20-24"), and the other fish were in fair state of preservation. I would rather have fresher specimens to preserve so I did not keep any. There was also one large 3 ft. group-ano. The parrotfish varied from light green with light blue under chin to pinkish on the sides. I believe the shorter bodied pink specimens were ♀s, and the longer greenish ones were ♂s. The gufdar were full of shrimp and some ♂ testes I saw were only near mature. When I hit the sack about midnight I was just about dead. The moon is getting near full again.

June 20th - It was calm last night, but there was a moderate

shamal this morning. Crowds came aboard, and there was general confusion + a mechanic looking over 2 broken down engines. Then the Tant started its engine and charged its batteries, and there was general noise, while we had lunch. I pulled the eel pots and had a few small filefish, etc. Abdulla pulled his gerguro and had 3 Abudefduf marginatus, for which I have been waiting so long. There were also Amphus. This afternoon, I went around the pier with the face mask, and saw nothing new, but I did see another dull yellow and blue pomacentrid. A few pounds of fish came in this afternoon, and the boys in our crew retrieved the heads Hamur, shari, and muthoa which has a grey head and fine small hair like teeth, small mouth and red throat, and is probably a large Plectorhynchus though there is no yellow around the eye. This will bear further study. Concerning the gulfdar, the smaller specimens a foot or so in length with thin stripes are known as rabib. I also think the term rabib applies to other species of thin broad smallish carangids, but I may be wrong. I wrote the following to Mr. Ohliger. - Dear Mr. Ohliger: I am writing at this time to request passage back to New York on or about Sept. 1, 1948. As you may know, my passport is good till Sept 16, which will be approximately six months from the time I left the states to come to Saudi - Arabia. My wedding anniversary is Sept. 13th, which constitutes the reason for this request.

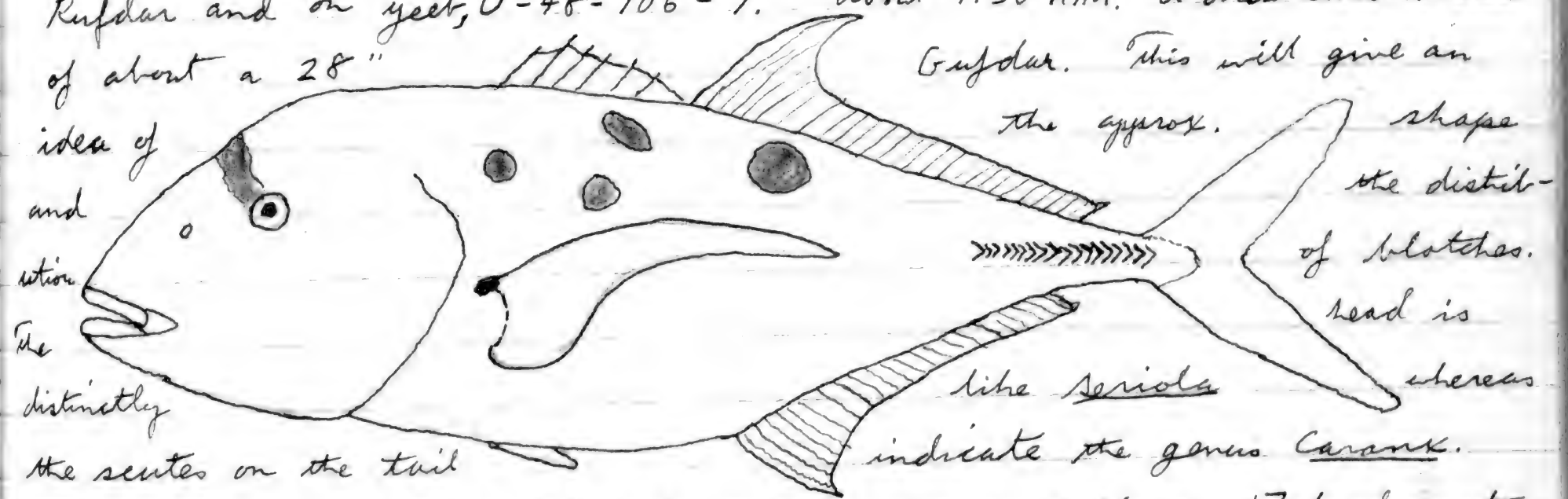
My first three months in Arabia have been barely satisfactory, and I shall hope that the two months remaining shall be more productive.

I would also like to arrange a short collecting trip to Jiddah in order to compare conditions of fishing and fishes with here and the Red Sea. The National Museum is almost entirely lacking of fish specimens from both areas. I would suggest a week or

two weeks in Jiddah just before I return to the states, as possibly being the wisest use of my limited time.

Sincerely Yours, Donald S. Erdman

I mailed a letter to Lucile and the above to Mr. Ohliger, and then went to the shanty to lie down it was 5:00 P.M. I woke up with the alarm at 11 P.M., and Ed and I went to breakfast and Mrs. Scott joined us and we went down to the pier. The fish seemed a little older than last night, and they had waited 3 hours. About half the catch was bad. Gulfdar was the main part of the catch, one Hamur, several shari, several parrotfish, and 2 new yeeb (a new smooth gach), which they say will be more common later on. I saved 2 14" specimens; one rabib sized Kufdar and one yeeb, U-48-106-7. About 1:30 A.M. I drew this sketch

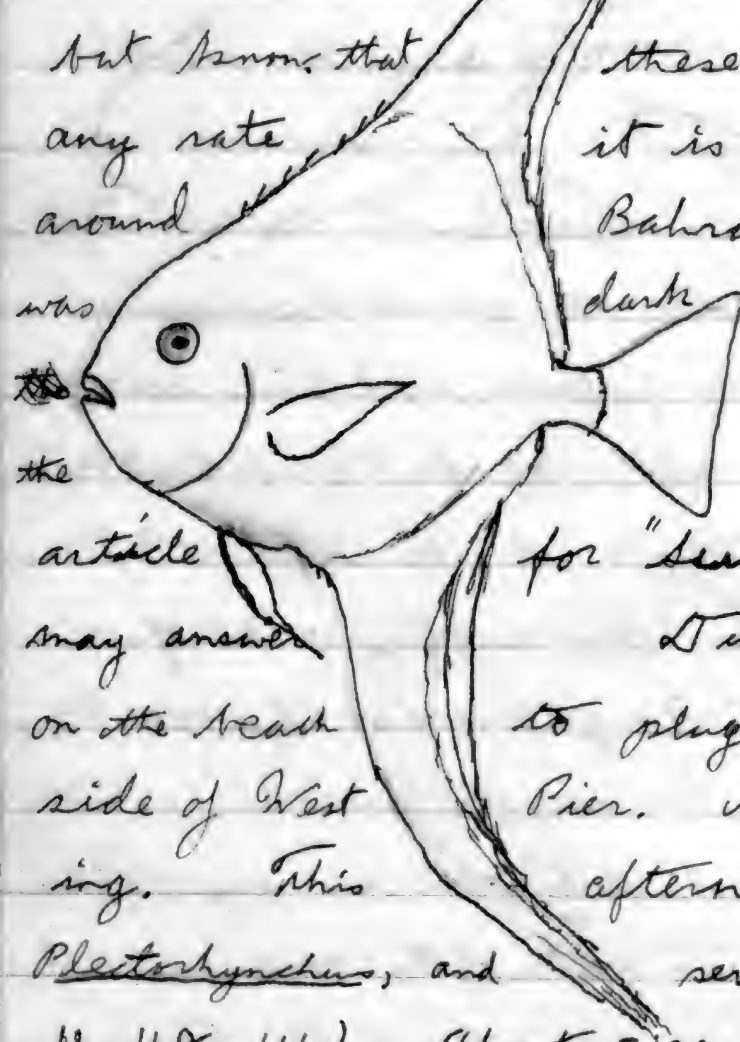


The counts on a 28" to tail fork specimen are as follows: 17 hard scutes, D₁ 6, D₂ 18, A-16, P-19, lower gill rakers 21, eye 7½, head 3½, S.L. 28" And a rabib sized specimen with black ^{bands} ~~stripes~~, 19 scutes A-16, D VII-19, gr. 22, eye 7, 14" S.L. The counts for the silvery yeeb ~~of~~ or jeeb are D₂ 25, A 23, 14 hard scutes, P 18, gill rakers 19, eye 4½, head 3½, depth 3½, S.L. 14."

June 21 - The calm again last night and early this morning. There was a moderate shamal wind blowing at sunrise and after sunrise. A load of several 100 lbs. of 6 inch shrimp came into the fish pier at 8 P.M. They did not look bad tho I would be in no rush to eat several platefuls. I had copious notes to tend to this morning.

I saw a six inch diameter solid white jellyfish with 2 small jacks swimming around it. Also recovered were several ^{pelagic tunicate genus Sargassum} stenophore shaped jellyfish about 2" which are transparent with a reddish ball at one end. They swim by contracting and expanding the body they swim. They are particularly abundant now around the pier, but I have noticed them all along and have collected them before. Abdullah captain decided to beach the boat today to fix a small leak which is still present near the port bow. What with the light motor in the machine shop and a lost oarlock, and indefinite delay; it probably is a good idea to beach the boat at this time. Early this morning the incoming tide crashed the Tarut against the south side of the fish pier which broke off some of the fish pier, which probably can be easily tacked together again.

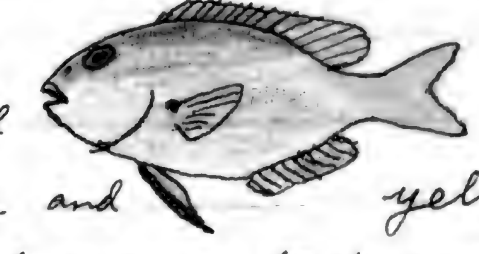
Abdullah Sol, seaman, brought me some dark almost black Platax from Bahrain, also Henippterus and Terapon, U-48-108. Since Bleeker does not record or figure Platax, I am hazy about the genus but know that these fish belong to the genus Ephippidae. At any rate, it is interesting to know that they do occur around Bahrain. The over all color of both specimens was dark greyish black with black fins. Here I will attempt merely to reproduce roughly the outline of this species. I touched up an article for "Sea and Shore" on local fish color which may answer on the beach side of West ing. This afternoon some large groupers, "hamoor", shari, Plectrochelys, and several sbaiti groupers (I got one to pickle U-48-111.) About 5:30 P.M. Ed brought a 4" chanad down the pier which he had saved from the shrimp catch. The shrimp catch came from Tarut Id. and Tarut Bay. This chanad had



an all black dorsal #1, and had the beginning of irregular grey bands on the sides, and large teeth. The gill rakers were still rudimentary and therefor not countable. It is likely that this is a this year's fish possibly hatched sometime in April? At this point, I will mention that I saw adult and young Terapon (the target variety) over near the sand beach on the south side of West Pier, in the afternoon on an incoming tide. Troubles occurred with the Tarut crew, but Swede and I finally got up to Had al Ruml with both boats to fish for the night. The light "Kohler" motor is still in the shop so no night light fishing. We set a shark line and had no luck again. The seining was very poor with the outgoing tide tho, I got a good collection of small stuff. Guts gubs were very numerous. With the big mesh company seine we made one set from shore and got one crab, and another set and we got a large piece of branch coral which nearly tore the net, and a black long spined sea urchin. The night was calm with a near full moon and flood tide around 6 P.M. The moon was rather orange near the horizon because of the dust.

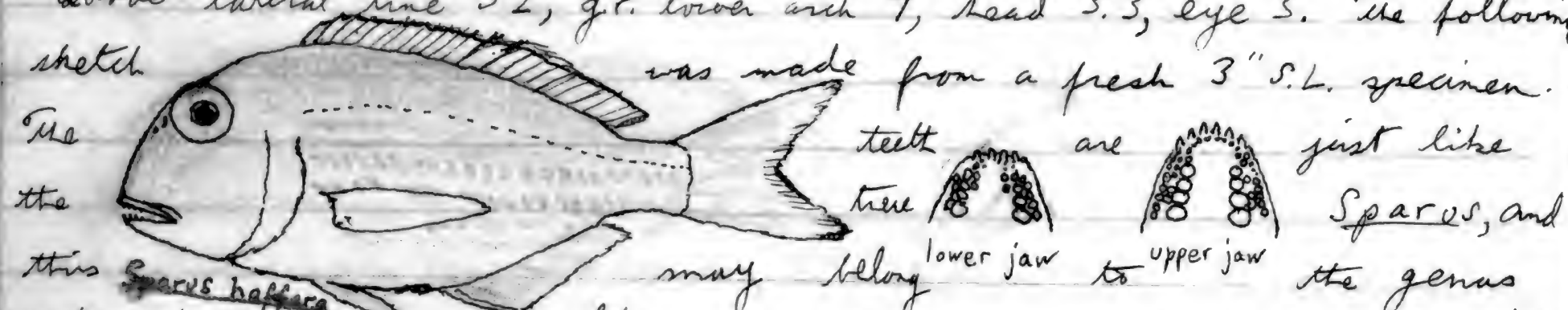
June 22 - a moderate shamal sprang up about 2 A.M. and at sunrise it was still moderate from 7:30 A.M. to 9:30 it blew real hard with white caps on the bay. Then it flat-tened out to nearly a calm.

The eel pots were productive today with two small yellow tailed pomacentrids, and a olive green and yellowish ophichthid eel with the tubular nostrils and prominent dorsal & anal fins but no caudal. The eel also had a propensity to go backwards. It was about 2 feet long. The day was wasted in port, altho we did get our light motor back again after it had been fixed. I used shrimp to bait the eel pots and I got quite a collection of quergufans and 1 Henippterus this evening. This evening I took



a few notes on the 580 lbs. catch of Kufduk, etc. that came in about 9 A.M. 2 *Rachycentron* weighed 35 lbs together one was about 3 feet the other around 30 inches. The 3 ft. one had a whole good sized mole lobster in its stomach, and the counts were as follows, P-19, D VIII-34, A I-24, Lower G.R. -8. It was a ♀ and had large flattish oval near ripe ovaries. The kufduk large ♂ & ♀s had near ripe gonads and their stomachs were full of crab pieces which were probably chum. One 30" *Chorinemus* was a ♀ with near ripe roe and D VI-20, A 2-18, P 17. There were also a couple of 14" yeet.

June 23- Calm last night with light west breeze before & after dawn. Swede speared an 8 lb. 24" sbarti, U-48-114, at flood tide, a picture was taken. He speared it near shore on the north side of the fish pier. This is a nice typical specimen and I am glad I did not feel obliged to give it to the crew; at 9:30 the fishing launch came in with shrimp and they had a 38 lb. cobia *Rachycentron* 41" S.L. and 50" T.L. I took 2 photos. I also hauled the eel pots, but there was nothing startling in them. Counts were taken on or about nose "gerqufan" as follows D XII-13, A III-11, P-14, line of scales above lateral line 52, g.r. lower arch 9, head 3.3, eye 3. The following sketch was made from a fresh 3" S.L. specimen.



It is blue silver above and silver below with 4 to five faint tan horizontal lines amidships. The eye is included about .7 in the snout. This is a very abundant fish caught on hook and line and in fish pots at Ras Tanura. The sky was quite hazy this morning, possibly indicating a coming shamal.

letters - to folks, Lucile, Edith Zoode, & J. Mahoney (article). It blew hard starting about 10 A.M. but it flattened out later in the afternoon still in the northwest. I went into town to write and mail letters. I came out after early supper with Swede to leave about 6 P.M. for ~~Ras Tanura~~ Ras Tanura refinery area beach. We caught one 1 ft. long *Lagocephalus*. Swede speared it under the light over the side in about 1 fathom of water on hard sand bottom. There were cuttlefish also on the bottom. The bottom was hard enough

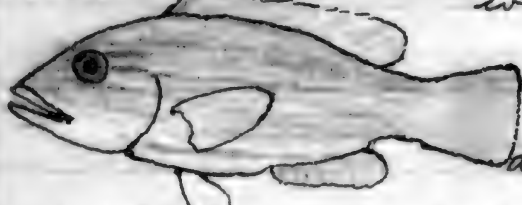


to bend up the ends of the spear. Abdullah, Saif, and I went ashore to seine a bit we took 2 minnow seines the 20 ft. & 100 ft. We only used the small seine because the tide was falling fast and was low and the fish were few. There was a flat calm and low ground swell. We caught on 4" *Sargassum*, and small *Apogon thurstoni*, *Terapon*, *geroids*, *Sillago* and *atherinids*, but no *theadpina* which I had hoped to get. We returned to the fish pier about midnight. Shrimp line & eel pots yielded nothing out there.

June 24- Fair and hazy in the morning with moderate increasing shamal winds. At 7 A.M. near the flood on the incoming tide I noticed again quite a number of dil jellyfish. This particular time of the tide seems to be the worst for them. I phoned Miss Ashley this morning 70-J-1 per request from Mr. Evans, and after an hour or so got hold of Mr. Johnson who had received my letter thru Mr. Oniger, and they said they could arrange my transportation to Jiddah anytime, and thought I should spend at least two weeks there. The more I think of it, the more I think I should leave now, rather than leave it till later. Because things are bogging down here, and I might run into more work than I would expect over there. The shamal increased to white caps in the bay during the morning. I offloaded boxes #5 & #17 full of fish to be taken to the ~~Shamran~~ Ras Tanura storehouse. I am in a quandary what equipment to take, but will

probably settle on an 8 gal. copper tank. The shamal flattened down a little in the late afternoon about 4:30 P.M. Around 4:00 P.M. Abdallah hauled the eel pots and there was a small olive green *Lutjanus* with blue green thin stripes that had him stung.

U-48-116



Another type of *Lutjanus* the "imohk" was there as there were also yesterday. It lacks the green dots of *L. nebulosus* and lacks the red gill cover of *L. miniatus* and it generally has predominant black blotches on the sides. Thus with another name it may well be another species. About 200 lbs. came in the fish catch about 3 P.M. and consisted of hamoor, shiari, sbaiti burtan (the black grouper), and a large 16" *Plectroglyphus* "shukhale". I started to pour formalin and pack a few things for my trip over to the Red Sea. Also today I found out the right name on the black grouper sbaiti. It is burtan or sbaiti burtan, or sbaiti. This clears up the confusion of the term burtan. I went into town this evening, and went to the movies to forget arabia for a couple of hours.

June 25 - Dusty horizon in the early morning and most of the day a strong shamal 15-25 m.p.h. till about 3 P.M. ? with calm at sunset, and clear and cool night. Today Ed and I went down to the fish plant about 7 A.M. to defrost it. The water around the pier was murky from the shamal, but Swede was still trying to catch sbaiti. Then Ed and I drove to Shabran because he had some friends and business to do. We arrived at Hassan Monsoon, the Sahat fishing contractor home about 1 P.M. I checked the pond where I found my first *C. dipper* at Safwah, and it was nearly dry. There were still a number of minnows there but no frogs. There seemed to be no visible outlet. But the water felt surprisingly cool. At Hassans we were ushered up to the cool second story

of a typical sea rock Arab household. With shade and mats to sit on and high ceilings with holes; there was good natural ventilation. We passed through a dark alley to get there and saw an Arab woman milking a goat in a dark corner. They were both the same color - black. About 20 personages from 2 to 60 gathered around us in more or less silence. And they were all males of course. Without an interpreter we did not get far except for a little discussion about fishing. At least one round of coffee & tea was served before we went down below for lunch. One boy was completely blind, and another was blind in one eye (syphilis probably). About 20 of us sat down to lunch with the meal laid out on the carpet.

The main dish consisted of a whole sheep head & all on top of a large mound of curried rice, and about 17 side dishes of canned fruits, native melon, raw onions, fried onions, grey tapioca, grey sweet stuff, small hard boiled eggs, a small tough chicken one each on rice for Ed and I. To start with Hassan sprinkled gooey ghee on everything that had rice; then we all dove in with the right hand.

I almost got my signals mixed once by reaching for the peanuts with my left hand. I did not eat too much which was bad manners but better for yours truly. Then we were left to rest in the room alone with the flies. After a long while our host returned and more coffee, more tea, and more sweet milk, and on and on. Then at last a walk in the date garden; but no we must visit Hassan's brother down the street, and more coffee more tea etc. etc., but it did come to an end, and we saw the date garden and got some not yet ripe yellow dates. And I saw a small fig tree for the first time with curiosity.

cut leaves. We finally left Hassan's about sunset, and he gave us 2 pairs of sandals, and we must come again. We returned shortly to Shahrhan, and I attended the movies, and Ed saw friends. On the drive back, we had a good talk, and I became convinced of Ed's sincerity in his work, and we moved out some wrinkles. If for nothing else than that, the day was well spent.

June 26 - Dusty sky again today with average strong shamal. I found out by phone today that there was a plane to Jiddah on the mon. So I rushed out to the pier, and worked like a beaver getting my stuff together. I finally ended up with a 16 gal. can of cube root, and a box stuffed with nets, and bottles of formalin. Mr. Scott helped me get on the Shahrhan bus, and I made Shahrhan about 3:30 with 3 others along. Things were more or less fixed by Mr. Johnson when I arrived, and I got a room for the night, got a haircut bought a shirt. I saw Jim Stewart tonight and had a good chat. I also wrote letters to Schultz and Lucile. King Abdulla of Trans-Jordan and his retinue were driving all over the place, and the place was alive with Arab soldiers.

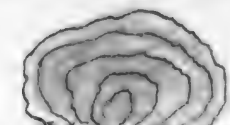
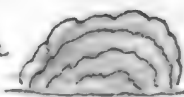
June 27 - Shamal in the early morning with visibility less than $\frac{1}{4}$ mile. I got up about 5:15 A.M. had breakfast and was stupid enough to mail my key. The dispatcher appeared at 6 A.M. with a taxi, and my driver smelled like something between a slaughter house and a dirty sock; so it was good the wind was blowing. My driver barely knew how to drive but he was good hearted. By 7 A.M. I was back in the house again, and the door was locked. The airport was closed to all outgoing planes. They hoped it might clear by 4 P.M. but have doubts. Because of weather all flights were cancelled, and I remained the day in Shahrhan, and wrote a letter to Mother (Mendum) and a provisional reply to Eric Maurer's idea of a round the world cruise included in another

letter to Lucile. The idea of a cruise appeals to me though I fully realize the sacrifices and dangers that may be involved.

There were small cumulus clouds in the sky above the horizon this evening. The horizon was still dusty.

June 28 - 5:30 A.M. a shamal is in evidence with dust all around. I saw a few clouds at 5:00 A.M. now I see only dust. It is rather doubtful to me that the vision will be much better this morning than yesterday. When we reached the air field you could still see a shack about $\frac{1}{4}$ of a mile down the field; by 7:30 A.M. you couldn't see it. For a while we were going off on 672 but because of one failing motor we changed to 673 and I got my stuff on the plane at the last minute without customs even looking at it. We got our seat belts fastened; then the pilot walked back and said it was all off, but I left my formalin & nets and collecting can on the plane, and just took off my small bags. About 10 A.M. I got a ride back with Mr. Truin?, who was also trying to go to Jidda. I called Mary Leonardini to say that I had not forgotten that she wanted me to give a lecture, but we decided it would be best to put it off until I returned from Jidda. Apparently the dust is all around again today, and I was glad to get a shower to get rid of some of it. Letters to Lucile and the Bertrams. I wrote up a fish list of fishes collected to date for Dr. Schultz. 97 species have been collected and pickled. 112 species have been observed and roughly identified.

June 29 - It was worse this morning than all the other mornings. The desert dust was hanging in the sky all over. Visibility may have been $\frac{1}{8}$ mile. I called a taxi to go to the airport just to make sure and nothing doing. I returned to the room and wrote up a list of fishes with Arabic, scientific, and rough English equivalents. I totaled 76 Arabic names; plus 19 names of other marine animals or plants. At 1 P.M. I heard about the plane leaving and thanks to Jan Petersen in a Red D-X



it made it. We left the field about 1:30 P.M. in a shamal but with fair visibility. Nevertheless until 3:00 P.M. there was too much dust to see land. But between 3:00 & 3:30 P.M. we passed over several towns and date gardens in the middle of the desert. At 3:50 P.M. at 11,000 ft. the temperature was 22°C in the plane and 20°C on the floor, and it felt cold. At 4:30 P.M. we saw big cumulus clouds to the west. Thence passed over reddish sands, salt flats, white sands, tan sands, brown and finally a belt of larval black sand. Also we passed over rocky hills of brown rock, and sand rock mountains. We reached Jidda about 6:00 P.M. and saw camel trains going off into the desert, and we saw the Red Sea. Aramco house is situated conveniently at the edge of town and not far from salt water. There is an inlet with rock and sand bottom and *Elodea* growing at its edge which a native was picking and putting in a basket. The quarters are good here, and things look alright. There are dhows in the harbor and there was a good red sunset with small rounded cumulus clouds.



June 30 - Fair and clear this morning with a strong breeze from the northwest. After breakfast, I walked around town and watched the various sights including colored women pounding grain.



One woman had a baby strapped on her back while she was pounding away. Every time she hit the grain the baby got a jolt, and somehow he or she did not enjoy it. I saw a fisherman going down the street with a pole over his shoulder a large *Chorinemus* at one end 3 ft. and a 3 ft. *Cybinus* *commer-* *sonis* and 2 or 3 small *Tylosurus* at the other end. Another had a string of smaller fish including *Zethrinids*, ^{SCARUS!} ~~spaci~~ and blackish green wrasse, and a goatfish.




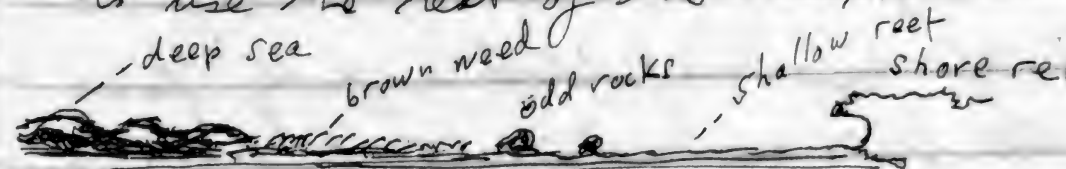
The rest of the morning, I put all the rotenone in two flour bags, and found several leaks in the bottom of the 16 gal. tank

which I got fixed up for 2 r. This afternoon, I walked along the small cove just north of the main part of Jidda which is not far from Aramco house. The west shore was mostly rocks and *Elodea* the north arm was mud sand with green sea weed (something like Big Mound) with hundreds of *Cypripodon* *dispar* all around. The males had the yellowish dorsal and distinctly banded square caudal, but I did not catch any, only a small blue crab. There were also numerous mud hole crabs like fiddlers only the claws were equal in size. Then there were hundreds of pointed snail shells (I collected some) It was low tide, and the water deepens very gradually, somewhat like Tarut Bay.  There were strange looking conch shells with a forward projecting point, just the opposite of the usual conch shell.  There was also a branched kind of sponge on the beach. The small stems were ~~yellow~~ greenish, the larger stems rusty brown. Numerous dilapidated dogs lay in the sand along the beach in one spot.

July 1 - Up at 5 A.M., which is an hour or so after sunrise here, Stuart Campbell took me out on Sam's pier, belonging to S.A.M.S. Saudi-Arab mineral Co. which is about 2 miles north of Jidda at Ruais. It is at least a $\frac{1}{4}$ mile long, and is a scarce fathom and a half of water at the end of the pier. The water for a long way varies from a few inches to 2 or 3 feet. Off the end of the pier we could see sergeant majors and snappers and also white peduncled doctorfish. On the north side of the pier a 100 ft. in from the end was an interesting area with brown sea weed, scattered coral, and hard sand bottom. Pomacentrids, butterfly fishes, and spot snappers were in good evidence. Mr. Campbell's name for the shrimp in the holes with the *Perioph-* *thalmus* is "bulldozer fish" the other is the "watch dog". The *Periophthalmus* looked similar to the Persian Gulf variety, but may be different. I thought

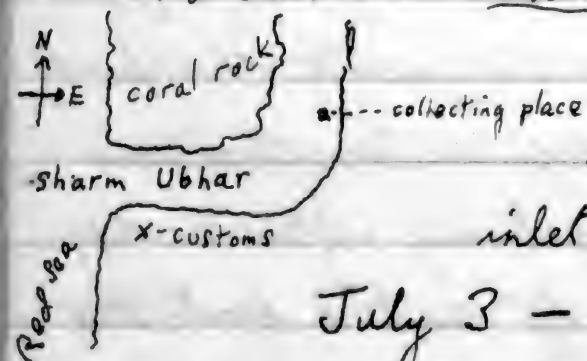
the place might be worth a try for poison. So I returned for my cube root, and returned and mixed about 4 quarts of dust with water, and spread it around some rooted brown weed and coral at about 100 yds off the dock. Since there is almost no tide at this point in the Red Sea (water level is changed by high winds only) there was almost no current. There was a slight drift towards the dock, and when the reef dropped off to 4 ft. of water the poison drifted slowly in the opposite direction. I filled a gallon jar solid with small fish and could have filled one or two more; if I had brought them along. A species of apogon (like A. thurstoni, but another species) was knocked off like flies, black pomacentrids were also greatly affected (contrary to the ones in the Persian Gulf.) But even atherinids and hering were affected. Sparappers did not get affected, and I saw no porgies. My success was due I think to several factors: the nature of the bottom, no fast currents and shallow water in the vicinity. I also saw Heniochus ^{caranx sp.} and Dascyllus aruanus which I did not catch. I got approximately 100 specimens comprising 34 species in one collection. This afternoon, I went out again with Hasan & Oli two Arames boys in a jeep up as ^{Gubat} Ashra about 8 miles north. At first we stopped the cove near by to seine some Cyprinodon dispar. ^{Gubat} Ashra is a reef rock area ~~not~~ unlike the south coast of Santo Domingo. There was a long curved reef beyond with shallow water inside and the rough sea outside washing upon it and setting up fairly strong currents. The smell was like that characteristic sea smell of reefs and salt water. I used some poison and got a new wrasse & blennies and a new Abudefduf ^{sergidus} which was sand colored with a black spot and some black markings. Further on I saw specimens of this Abudefduf 4 and 5 inches long darting back and forth under a large reef rock. They reminded me of A. taurus at Tobago keys. There was a pretty sunset with considerable cumulus clouds and continued strong north west

winds. The sea birds I have seen include dusky bellied terns, long beaked terns, and small blue grey herons. I have also seen several small hawks around the town. Around at ^{Gubat} Ashra the mountains are visible to the east, and the ground continues to be the same odd dark brown color characteristic of the shore here. Oyster weed was common on the reef  just as in the W.I.; there were also other kinds of dark brown seaweed. In fact the oyster weed was dark brown rather than light tan. There were some Arabs around and 2 had throw nets. Near Rasin we saw a half dozen long seine nets staked up, and drying on the shore.

July 2 - It was calm at dawn this morning, but a moderate north-west breeze soon came up. The boys took me out to Sam's pier again, and I tried another 5 or 6 quarts of rotenone. There was a dead moray eel floating around from yesterday. The black apogonids and black pomacentrids were the first hit, then we got a couple of very beautiful Acantharus black with thin light blue stripes. I dropped my watch on the store stairs yesterday, the face and crystal came off and I lost the second hand, but it still runs. I just finished caring for my specimens, and Oli, Hasan, and I went off to Gubat Ashra. We tried the reef near the reef rock. I poisoned around a rock in the water, and only got very small pomacentrids. Finally I decided to use the rest of the mixture in the brown weed near the breakers.  I dumped it in one spot all at once and did not expect much; the results were stupendous. The wave currents grassed the cloud, and fish passed through it and we were busy for an hour picking up fish. We saw a black tipped fin of a 3 1/2 foot shark floundering around on the reef. Hasan went over but it swam off into deep water when he shouted. The gulls were

helping themselves to odd specimens. Then we pressed on another 5 miles to ^{Sharm Ubhar} an inlet from the sea through the coral rock. The inlet was about a 1/4 mile wide at its mouth. A coast guard hut is on the south side. We went about a mile & half west & north along the inlet and stopped. I poisoned around a large rock in shallow water 6"-1 ft. deep, and also around another rock. I think I used more cube root than necessary (a 5 gal. paint bucket almost half full of dust), but the results were quite satisfactory, consisting of a number of *Belontiids*, *Bathygobius*, a *banananda* etc. I saw some brown coral rock where the fossil coral could still be plainly seen. The bottom was reef like with some black mud.

We returned after dark. I brought back a couple of *Tridachna* man-eaters which are a beautiful yellow or blue inside. A *Lethinus* and several *Crenidens*? were an addition to the collection. The following map indicates the approximate collecting place, U-48-124; generally the water all over this inlet appears to be very shallow.



July 3 - I worked hard wrapping and drawing and making notes of fish specimens this morning, from about 6 A.M. to 10 A.M. About 10:30 A.M., Ahmed Rashad, Hassan, and Abdul took me down to the "sag" to the fish market which is at the end of the arched canopy. There were very few fish, and I was almost discouraged, but I am glad I decided to stay behind with Abdul. Pictures of life unfolded rapidly for the next hour or so. An old fisherman almost blind helped on the names of fishes near by, then we went back up the street and stopped passing fishermen. All fish are apparently sold direct by the fisherman to the consumer or nearly so. They are carried on both ends of a stick and are tied thru the gills and mouth. One fellow at a cafe bought a beautiful 1 ft. blue

parrotfish from a passing fisherman. The fish as a whole seemed quite fresh, and the colors were rich varied and beautiful. Brilliantly colored wrasse, parrotfish, and doctorfish were on many strings as we passed along. Abdul repeated the names, and I wrote them as best I could. Tomorrow, I hope to try it again with the camera.






We went right down to the boats on shore where fishermen were cleaning their fish, and old fish heads lay around indicating former cleanings. On our return trip we stopped at 2 fish frieries, where fish are cooked over wood fires fried in grease and are sold to passing customers, which is not a bad idea at all. In fact, they looked and even smelled quite appetizing. I got 28 Arabic names and saw at least 35 or 36 species of fish, many brilliantly colored. In general wrasse species were classed under one name, parrotfish under one name, *Lethinus* & *Conthodentex* under one name, etc. Apparently the distinction between species is not so strict. One *Scarus* I saw had very much the red & the green colors of *S. dussumieri* of the Persian Gulf. This afternoon about 3 P.M. I went out with Ali in a launch to look at the sea. There were 8 on the crew of the launch. Inside the first reef the water was shallow and murky. But between the inner and outer reefs the water was clearer and deeper several fathoms in spots, but there were dangerous shoals and reefs all around. We went outside the outer reef and got a slight roll from the sea, the wind was light from the west. We went south about 2 or 3 miles to Abu Sad, an island with buildings. It is the quarantine island. The two Arabs who stayed there invited us ashore for coffee. Then we left and returned to the outer reef south of the channel entrance. It is about a mile or mile and half long and 400 yds wide, and only a foot to 3 feet of water on top of it. I used up the remaining poison in the first flour bag. The wave current was stronger across the reef than I thought so I made

a mistake in putting the poison all in one spot near the surf. Nevertheless the capture of several worm eels, *Saccyllum*, and a new wrasse probably made it worthwhile. ^{Small} Gulls almost black in color helped to collect specimens for themselves. A lot of small silversides were hit.

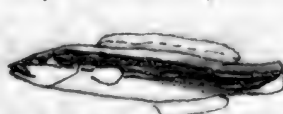
This evening, I went out to Sam's pier, and waded around with the spear. I tried the windward coral side first but saw nothing; so I went to the lee side where the bottom was mostly mud sand. I saw a large grouper black and brown (possibly 3 or 4 lbs) lying still in the green on the sand. I got poised with the spear, but he didn't wait. Then I speared a crab out of disgust which was fatal because I saw a *Platycephalus*, and missed it on account of the crab. Then I saw a black sting going along, and it was a fair sized sting ray. I speared him but did not crush hard enough. There was a great commotion and it got away, and cut close by me; so it was not pleasant. Then I saw a smaller one. I hit him or her twice before I could shove the spear thru. I saw it when I had a *Siganus* on the spear. Needless to say I pulled off the *Siganus*. Near the dock I saw an octopus and speared it. Mr. Campbell came along about that time. With 2 specimens to care for, I thought it a good time to quit. On the windward side of the dock in the reef grass there was a grey deal of phosphorescent animal in the water, like small sparkling diamonds. Silversides and halfbeaks were attracted to the light. I also saw geroids as well as *Siganids* on the bottom.

July 4- I went down to the fish market with Hasane in the jeep about 9 A.M. There were alot more fish than the other day, but there were not any highly colored wrasse or parrotfish. The most abundant fish was salmoni a long fat round clupeoid about 20" T.L. with a forked tail, and it look something like *Elops*. Mullet and 2 kinds of jacks were also plentiful. The flies, however, exceeded all else in number. I took one picture of 2

black parrots, a red squirrel, and a black *Siganus* (1 royal). The rest of the morning, I worked on yesterday's specimens. I saw several new fish including a spadefish (or possibly it was that large grey *Acanthurus*), and a silver groacher shaped fish with black dots.

This afternoon, I went with Hasane and Oli south of the city. The desert is white sand there, and there is no hard road, the beach is sand going down to water with mud sand bottom which is very shallow deepening to about 2 feet gradually. There were several small sand & reef rock islands. One we waded to had small trees on it they looked like mangroves with  the straight sprouts, but there were none in the water. And the largest were scarcely 2 feet high. Several islands further out had more and apparently larger trees possibly 3 or 4 feet high. There were blue crabs, 2 crabs, and shrimps, and a *Platycephalus*, & *Cyprinodon* *dispar* in the water. This water runs behind outlying islands and reefs, and probably accounts for its character. I went on a little further south and saw a few dug out cones in the distance, but about the same type of bottom. In fact the mud was so that we sank too deep into it for comfort, and it is so mixed with coral sand as to be sharp & uncomfortable. Thus the shore south of Jidda is rather less productive for collecting than the shore to the north. We also saw a saw large almost black heron, a couple of terns, and several small white plovers. The jeep we had was always running out of water; so we had our troubles, and returned about 4:30 P.M. At the last spot we stopped at there were tree seedlings three or four growing in about 10" of salt water about 50 feet offshore.  These leaves as well as the other trees were reminiscent of mangroves. Why these seedlings were growing here (just three or four widely scattered, I don't know.  The fruit dried pod of the tree was cylinder shaped and reminiscent of a wasps nest in appearance.

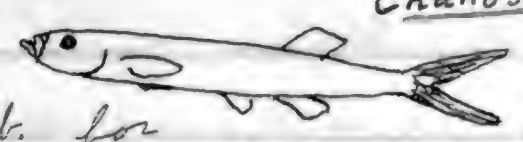
The mountains were clear in the back ground today and the wind was breezy from the north west, and the flatness of the desert created considerable mirage. This evening we were invited to the American legation, Mr. Childs is consul, and he mentioned to me a fishing trip Thursday. Two I.B.I. fellows, ^{Mr.} Ross, Spence, & Linsey invited me fishing for tomorrow. I also met Bud Babcock, ^{Fred} whom I did not recognize at first, but he spoke of Orient and Caroline, so we had quite a talk. He works for Sams. as does Mr. Powell. There were drink, & movies on the roof, and the evening was pleasant and I am glad that I went.

July 5 - We left the pier about 7 A.M. in a 20 ft. launch with a herosere motor and 2 rather sullen Sudanis and we trilled around Jidda harbor with 3 spoons inside the reefs. About 9 A.M. just inside the outer reef at the south corner a large jack Caranx sp. was landed. It looked most like C. latius but did not have black fins. It was grey green on top and silver below, and clear fins. It weighed about 20 lbs, a ♀ new ripe (?), 33" its tail fork, depth 3, head 3 1/4, 28 head scutes, P-20, D VI-17, A-II-16. Gill rakers lower arch 12 + 2 rudiments. ^{clear water} Native name "gherm"? It was caught near a reef. A half hour later in murky water we caught a barracuda ("Agam") 14 lbs. S.L. 38" A-9 D-9, and it looked very similar in size shape and coloring even to a few black blotches of Lophysaurus barracuda. We stopped at a reef a while to eat, and I examined a deep large coral protuberance. Acanthurus with white peduncles were most abundant, also ^{light} blue, ^{chromis?} demomelles, like pink or blue parrots, Dascyllus, a small black & white wrasse  which I approximate from memory. Hemiochromis, Abudefduf marginatus, Aetodon (2 species) etc. It was calm in the morning with a northeast breeze starting about 11:30 A.M. We trilled the surface without heavy lead. I also saw some black headed snappers about 14 inches T.L. I saw 2 or 3 ospreys, and a couple of pelicans in the distance.

This afternoon, the wind died again. Ali, Hasane, and I drove again to Ghat Ashra. The sea was calm enough so we could wade to the reef's edge and look into the seas blue abyss. At the reef's edge were myriads of fishes, and near the edge coral of all colors purple red, bright green, tan, grey, and brown. Rather than make comments I will list the species seen which are new: Acanthurus with 4 orange spines & black, Nasus grey in color sp. unicornis, Megaprotodon? orange yellow and black but not the same as the P. Gulf variety, Chirchitus (brown, blue, & tan), red grouper with blue spots, grey shark, 3 feet, with black and white dorsals, black pinnate fish, tiny dent with white tails at the outermost edge of the reef, Pterois with its flowing fins, 2 tremendous, 5 lb. & 3 lb. wrasse?, they were dull grey shaped like Lethrinus but with a wrasse like tail and big scales, black blue & white wrasse, a 10 inch black wrasse with a white blotch on the side, a Caranx with fine black spots & heavy head 10 inch specimens with bright blue back; old 30" specimen dull green on back, a black Ostracion cubicus; the other specimens like Ctenochaeta had opposi-^{rock} tion or rather were actually collected. In shore next to the reef, the temperature of the water was 32° centigrade. The air was 35° c. Dried and other fish were swimming around in the hot water.

July 6th - Up at 4:30 A.M., had breakfast, and worked on my fishes collected yesterday. Some of the larger ones did not have good smelling intestines, and I probably should have cut their bellies last night instead of this morning. I did not feel too hot today sort of like having a cold for a long time, but I went down to the fish market with Hasane (as the fishing trip in the sail boat had folded up). We found a few fish to take pictures of and I got away with one real. This business, however, is not very successful, since they are loath either to stand, or especially lay their fish on the ground. The wind came up about 10 A.M., then it was too late. Hasane loves the sea, and has worked on several freighters. The salmoni are

Chanos chanos

caught in nets  and run about 18" long, and run about 1 lb. or 1 1/2 lb. for one real. They are among the most abundant fish in the market place especially early in the morning. They soften and spoil rapidly. We saw one fellow with about 2 dozen strung on a pole, and the fish were about ready to drop off like over ripe apples, and the body was almost mush, and the eyes dull red & sunken. Whether or not they smelled I could not tell, because I had just seen thru the "sag".

This afternoon, Hosane, Ali, and myself went to Dubat Ashra again. None of us were energetic, we were all water-logged from the other day. I spread the poison at the reef's edge but with the small amount I still have left; it is not really enough to do very much. I think we got a new Tetraodon and also a new wrasse. I saw a crow this afternoon not far from Sam's pier.

July 7th - Today was the beginning of Rhamadhan, hence there were a lot of cannons shooting off in the middle of the night. I was semi-conscious of the noise. Though I felt somewhat better than last night, I have acquired a cold thru an overdose of salt water in the nose and ears. The slap of the waves at the reef's edge makes it uncomfortable. I straightened out my specimens collected yesterday. This afternoon I visited the Bechtel office, and Mr. Finsey showed me his tide records; 2.6 feet is the greatest difference between high and low tide. .6 and .5 in other a half foot or less are most common. They also keep temperature and humidity readings 92°F and 79°F humidity at about 3 P.M. with a strong northwest wind. I also saw the chart of Jidda harbor & approaches Brit. Admir. 209.39 reprinted by U.S. Hydrographic 1942. Last night about 5:30 P.M., the sun set at 6 P.M. I noticed a tide pool connected for the first time with the muddy inlet just north of Jidda. This is the

first bit of tide, I have noticed here yet. The fishing trip with Childs is called off Thursday on account of engine trouble. I advised Stuart & Campbell that I was ready to leave in about 3 or 4 days. He has been very nice, accommodating, & helpful during my stay here. The tank is nearly full now, and there is not much poison left. This evening tho I was wracked with pains, and had a cold, Hosane and I went spearing off Sam's Pier. A flathead and 2 new blowfish were the reward of the trip. Mr. Finsey of Bechtel also waded around with us and we had two spectators on the dock; I saw a small black spotted ray but missed him. I got to bed about 10:30

July 8 - I managed to maneuver downstairs to wrap last night's fish, but I am without energy. I finally got a chit to go to Dr. Zonet at the American Legation. My temp. was between 102 - 103°F, but he says 106°F is not uncommon here with nose & throat infections. I also got some penicillin shots, and in some ways I feel better than last night. My nose is not running but the cold is in my chest, another characteristic of colds in this region. We got on the subject of fish poisoning, and he was particularly interested in the barracuda. He told him the stories about barracuda vary all thru the East Indies. But really little is known about it.

July 9 - I managed to live thru the day without going into painful details. Dr. Zonet came again and I got a shot in the other hind quarter. It is called Penicillin in oil & wax Schenley (1 cartridge 1 cc) List #147 300,000 units crystalline penicillin G Potassium suspended in peanut oil containing 4.8% w/v white wax U.S.P. (Romanovsky Tormala).

July 10 - I think I can say that I feel better today. Dr. Zonet came, another shot temperature 101°F. The sky was almost completely cloudy around sunset. I coughed most of the day. Dr. visits.

July 11 - Still coughing like mad today, with fever. Dr. visits

July 12 - Fever still around 102° , cough not quite as bad, taking atabrine. This evening I moved down to the room downstairs. After supper, Hosane brought in 2 salmon (6 riyals). I injected them well, and outside of slight drying, I think they were in good condition.

July 13 - Fever and continued coughing. Dr. Bonet visited twice.

July 13 - Letter mailed to Lucille via Shabran, two visits from Dr. Bonet. Fever has gone down 101.8° F. Still have dangerous cough, and keep taking codine to stop it. Taking sulphur, atabrine, and codine for my cough. Last night I got sick after one cough in bed, and I just made it into the first basin, by the skin of my teeth and it was very thin, and I lost all my cookies. When I got back to bed a second I felt weak, but I slept very little during the night. Temp. of my fever 101.8° at 6:00 P.M.

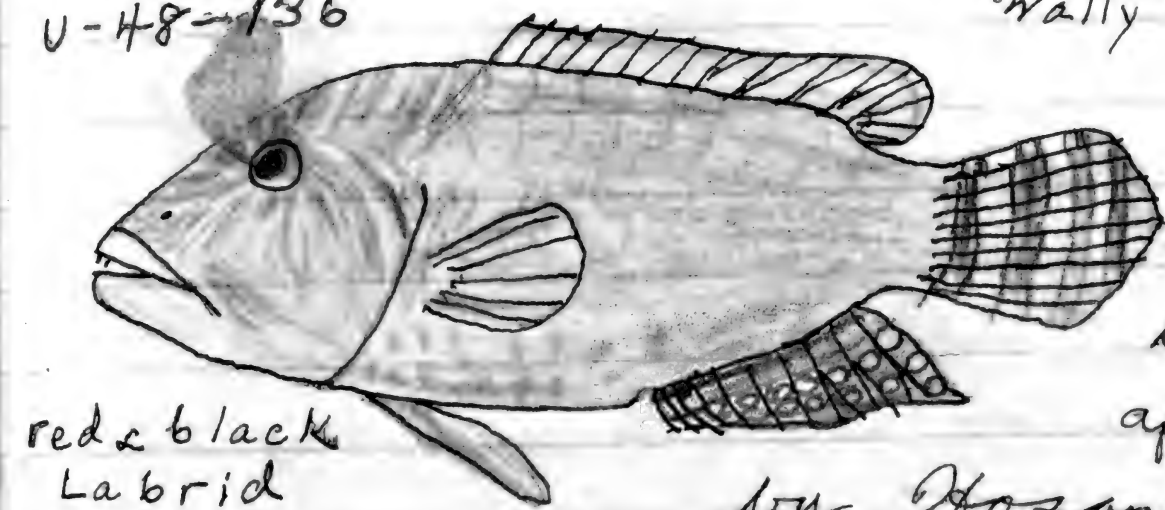
(cont.) July 13 - Bastille day - My first meal was lunch today and so far I have kept it down. My bowels are very loose and moved at least 7 times including one during lunch, right in the middle of my lunch. Dr. Bonet, came about 10 P.M. My fever is a little down 101.5 compared with last night. Dr. Bonet is doctor at the American legation and his wife is a nurse. He is a Frenchman, and has worked before in Indo-China. He has been here in Jidda, only several weeks. He is rather short and stoutish with a Jewish nose, and he wears eye glasses and has thinning black hair. He appears to be very competent in his profession. I made great decisions: to stick with the Museum, and do more for Lucile.

July 14 - Dr. Bonet visited this morning temp. 101.5° F. I worked hard all day on specimens & notes, and I gave Hosane all my fishing gear to use. He was very willing, and he may pick up more stuff before I leave Jidda. Temp. 101° F at 6 P.M. passionate love letter to Wife, given to Mr. Campbell to send to Shabran. Dr. Bonet came again tonight, and he said he was sorry the fever was not down yet.

Juan Domingo Suarez - Puerto-Rican fisherman, working east of Cape San Juan, P.R. There seem to be more abundant varieties in the Red Sea, than the Persian Gulf. This entirely due to the bottom character, of the Persian Gulf. No porpoises seen on the Red Sea in the vicinity of Jidda, also no sea snakes (Hydrophis) are apparent. Slight vomiting after supper, but I didn't lose much and arrested the cough with codine.

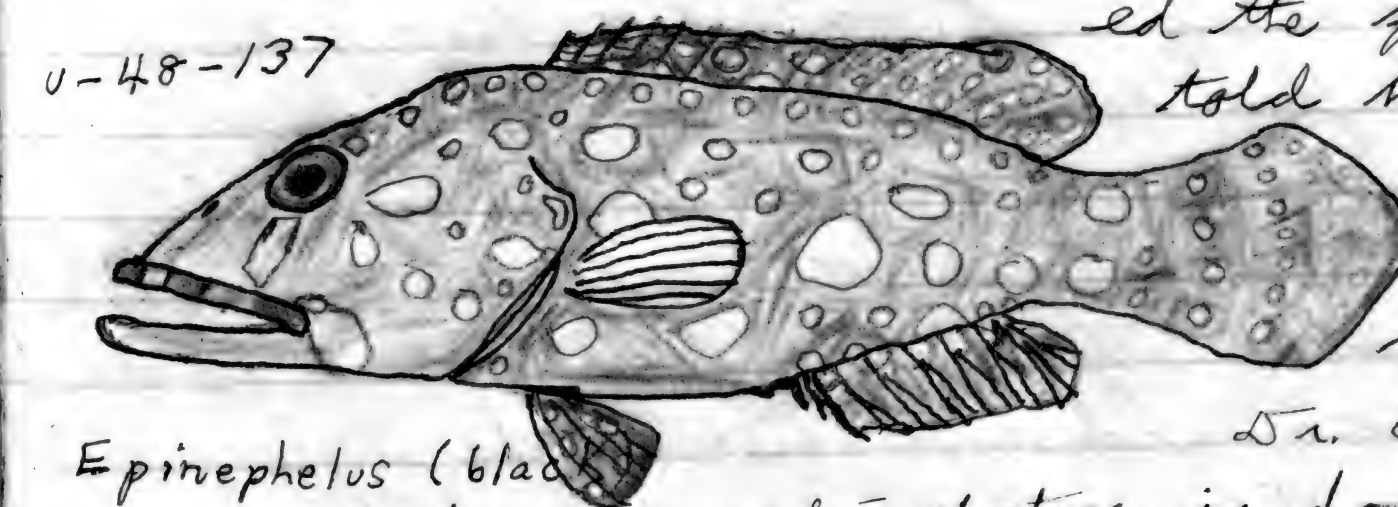
July 15 - vital statistics of my fever and bronchitis; pills total = 251, breakdown codine 30, aspirin 12, atabrine 15, cascara 2, sulphur 48, 144 $\text{CaCO}_3 \cdot \text{OH}_2$. Wally Turner still has my eraser

U-48-136



red & black Labrid

U-48-137



Epinephelus (black)

2 p.m. today my temperature is down to 100.5° F. I am yellow from atabrine, and am coughing up deep yellow phlegm today. I find that codine is excellent for controlling deep coughing. It has saved vomiting on countless times the last week. Dr. Bonet visited about 6 P.M.

July 16 - Tho I did not feel too hot I slept most of the day in brief periods. I had a midnight lunch. Am still living on codine. Pill total + 6 codine + 4 atabrine total pills 251. This morning I

Total cash on hand as of today 100.28 guverche. These fish were collected from Zubat Ashra after dark last night by Hosane. I certainly appreciated the specimens, and I told him so. Thus I completed my chief work of the morning.

Dr. Bonet came about

I finished "The G-string Murders" by Gypsy Rose Lee. It was very real written and partly biographical and described stage life very well. Dr. Zonot came this afternoon with his wife. He said I had bronchial pneumonia which is often fatal; my temp. is 100°F. I will not leave for Tehran for three or four days yet. I am as weak as a kitten. Fish processed this morning, and 2 fati this afternoon. The 66 gal tank is loaded. I need to stay here at least three or four days to recuperate. Hussein bought 2 "futi" in the pm, U-48-142. The nahid or zumbuk is the man-eater ~~claw~~ of Jidda. In Port Sudan it is called "cocaine". genus *Tridachna*.

July 17 - Hussein arrived at 4 A.M. this morning with sharks and *Paraperis* in tow. 10 Riyals. I just barely squeezed them in the tank after injecting them with 2 blows a piece of the hypodermic.

Hussein had this quaint story of the Arab fishermen as to how the flounder has eyes on one side only. It seems one Hadji Sulaiman was eating a fish and he held it up to sun thus one side turned dark with the eye, and the belly white. Allah caused the change. Hence it is now named as "samak saida Sulaiman".

I had midnight lunch again tonight.

July 18 - I had two dreams this morning which were very vivid and stuck in my memory. They were in two separate parts a 1st & second:

The first started and it was on the Cornell campus and the bells were ringing I had a few classes yet before the May Day ball, and I remember that came up and I got a date for her.

I don't remember my date at all and little about the dance but Larry was also there. The next morning we went off on a car drive into the green hills and wades up and down and around. We came to a creek and I remember seeing several strange Indians around. Just before I left the campus, I remember battling a large black & white billygoat who was following a tan and white female. Tho' he had big horns he didn't hurt me much this happened in front of McGraw Hall. Larry helped me. The goat and I were even I had both hands on his horns but couldn't let go.

Finally we left the Indians who glowered at us and went on up stream seemingly undisturbed. We wandered far up Larry and I near the headwaters which we reached near sunset. We saw a low stone fort near by the stream on the brow of a hill. More likely it was an old mill stone house. Larry and I finally stopped looking under rocks and scaled the wall because some wild dogs were barking at us and a few Indians appeared again. We scaled the wall to apparent safety and there was an indentation on the roof and sort of a stone parapet around. Water was gushing in from the stream side because there was a dam but it didn't come through fast enough to fill more than one end of the spill way or trough which led to the spill way and turned the wheel I guess? It was old and apparently not used. I remember trying to urinate because I needed to but the excitement was too much. I had to forego it except for a squirt or two. Night fell quickly and we didn't have peace long.

There was a long sloping roof with shingles attached to the mill and a ~~planning~~ ^{planning} down hill from there at a steep angle. Soon a whole bunch of half naked savages started ~~throwing~~ ^{throwing} fire darts at us and the roof was ablaze in no time with the heat and smoke of course coming our way as well as countless savages. Hell was breaking loose and one savage had almost scaled the roof on a side which had not yet caught fire, which was really nearest us. If we didn't leave then it would have been our end. So we flew down hill into the night over the heads of the murderous tribe. They were so intent on torturing us in the fort that they did not look up or shoot arrows in the sky we flew rather close over numerous camp fires. Then the dream blotted out and I had the shivers of a narrow escape. The second part started with Sany and I in an Indian camp near my last night's place. We were sort of their slaves but if we behaved they were O.K. to us. There was some dancing going on but mostly just squaw and kids were around. I was given a bundle of raw hide horse reins two pieces, and Sany was given some candles. We were to distribute them thru each ~~tent~~ ^{tent} in camp. A little Indian boy led us thru. We didn't have much trouble or encounter hostility tho I had trouble picking out two different reins every time, and I got some grumbling when I made a mistake -- then the dream discontinued again. And I found myself outside a log cabin on a hill. It was night and the lights were on. I was

129
room inside. Red headed Pa was getting over a drunk and black haired Ma was scared with the children. There was an earthenware cask with a fairly wide opening near the wall. Pa had just cracked it with a cleaver because he knew Ma was going to pour the apple jack into it and set fire to it. Nevertheless Ma had another thing ready the cooking pot over the fire which she removed, and I helped pour the apple jack out of the can into the pot. Then Ma started quickly striking matches and throwing them in; there was a flicker of a flame, but no luck so we were foiled. Pa roared with amusement. So we passed the spider colored grog around it was frothy on top and rather thick. It tasted a sweet apple taste; at first Pa was noticeably disappointed but then he cheered up and I shook hands with him, because he knew the joke was on him it was his own bad liquor. Thus the dream ended and I woke up to daylight. I seldom remember dreams or at least so clearly. So I hastened to write this down as part of my case history. I had to urinate badly when I awoke and started to cough badly. But iodine and aspirin and the bathroom relieved all shortly. The causal factors of the dream was sleeping on my back, my cold, my full bladder and that I was about to wake up. But how to explain the psychology of it I can only explain in part. First I went to Cornell 37-41 and this was the spring of my senior year. My girl, Bobbie had just married last fall; so I had no particular girl and was not attracted by any particular coed at the time. And I do remember asking Roy and Nat who came

Felix Llugo, Mr. Ohliger re: plane
 Aug. 10 letter to Lucile July 21
 up to a prom that year or the year before. The goats
 are specific the female is Mr. Nieves's goat that
 ate all my pole limas in Suquillo, Puerto Rico.
 Other goats had filed on before but they were not
 the evil characters. The Billygoat was Pecos goat
 Pepe. He was evil the day he was born and he almost
 ate up the week's pay roll one pay day. Roy Schall
 a tall blue-eyed blond was his A-I enemy. Roy
 could cover ground when he was mad and he
 could wield a stick. A chase between Pepe and
 Roy was a daily occurrence. Usually a loud "God
 damn!" and Pepe would fly out of the Recreation
 Center with Roy hot on his heels. Pepe usually
 got a beating but it never bothered him. Larry
 had never visited Cornell; I asked him a couple of
 times but he never could make it. The grey rocks and
 green hills and vales and blue streams are a common
 and beautiful site in the Iroquois country of the
 finger lakes. The Cayuga Indians had a prominent
 place up the lake on the Cornell side not far from
 Wells College. It was still being used, and I remember
 seeing the place on the brow of a hill overlooking Lake
 Cayuga. Also I have seen Indian wars in movies.
 This is my explanation. Wind strong northwest this
 p.m. I got an invitation from the Minister tomorrow
 3 invitations in all I have had to turn down for
 fishing!!! Damn but my fishing career is over now.
 My fish syringe was cleaned out this afternoon
 and the necessary washings in the Persian Gulf added
 rust, so I duly cleaned all parts as well as possible.

7/20/48 letter to Lucile, folks, Hussein, Chalvan fishing club
 ra spots nepper Sunday 123

July 19 - The first night I slept practically straight thru
 I feel a lot better this morning with Schultz report com-
 pleted etc. with Red Sea Data a Puerto Rican plan.
 Strong northwest winds today with clear sky.

July 20th - I feel much better today and have a lighter
 I have lost quite a bit of weight and feel weak from
 my illness. I wrote a long preliminary report to the
 Franco Relations office and the fishes of the Persian
 Gulf and Red Sea. Fever 99.2°F at 6:00 P.M. Dr. Bonet
 I also got a sick leave slip from Dr. Bonet for bronchial pneumonia.

July 21 - Had best night's sleep last night and finished a
 letter to Lucile. And I feel better this morning. I took the
 plane out of Jidda at 2 P.M. It was a bumpy ride
 over and didn't help my ears. I got a letter off to
 Lucile and one to Stewart. I bumped a ride up
 to Ras Tanura since the 8 P.M. taxi did not stop
 by the clubhouse. I saw Mary Leonardini
~~Sunday~~ in the new dining hall and she will
 arrange a lecture for me Sunday.

July 20 - Ed and I got up and had breakfast
 at 11:4 A.M. I am still coughing. Windy and sunny
 today. Ed and I had fried shrimp and curry mutton
 for our supper. The boys have been collecting fish for me
 and Abdullah Soli caught a sharti hook-line near
 sandown. About 500 lbs of large groupers came in.

July 21 - Did not sleep well last night too tired.
 Ed and I got up about 7 A.M.; Scotty called us. It was
 windy with dusty sky with sun breaking thru 8 A.M.

Letter to Ohliger re leaving on plane Aug 10th because
 of health. Fishery report to Ohliger & Schultz 3. also a

124 July 22 - Letter to Lucile
here ~ Austin Clark
July 22 letter to Hadley, Lucile,
~ Aunt Katharine ~ Mexican survey committee of A.F.S.C.

a letter to Lucile and a letter to Felix Inigo telling him that we dropped to arrive Sept. 1 and hoped to do some collecting together. I saw a good movie tonight called the Barracuda it was a story of square riggers ploughing the trades between Cartagena and Portoguas. The girl was beautiful with graceful Auburn hair blue eye and black eyelashes a pretty nose kissable lips pretty ears and pretty breasts and a graceful carriage with long arms and legs and a broad pelvis, and very pretty teeth. Ear rings and jewelry fitted her very well. There was a fort like Morro castle in La Habana and there were pretty sunsets blue and grey seas and white trade cumulus clouds in Cartagena lagoon at night. It was altogether a very pleasing picture. I sweated and cursed noisily at the typewriter today as I banged out my report.

July 22 - Airplane trip postponed to Monday. Dusty sky today but almost no wind, quite hot. I went to the movies again tonight finished book wrote letters to Aunt Katharine and the A.F.S.C.

July 23 - Clearer today and hot. I went out to the Palestine for the day. The sky became dusty again and there was a light north west wind. With Armedo's help I straightened out the fishes collected in my absence including a new species of grouper, and wrapped and labeled them. In the early afternoon I ran a short poison station by the fish pier rocks and got a few small fish and 8 interesting blennies. I am still pretty weak on my pins and tire easily. I mailed a color film today, and letters to Elsie & Lucile. Late lunch about 4 P.M. And I ran a sailor's

125
Report to Schultz July 21, letter Chase: July 23

needle thru my arm while fixing a sandal. I went to the movies tonight.

July 24 - Clearer and hot today with little wind. I mailed a letter to Lucile ate breakfast, and went to see K. O. Teltman to get the ball rolling. He got me to call Mr. Johnson in Shahrman to arrange my airplane trip home around Aug. 10th which he said he would do. Then we went to the clinic to see the doctor about physical exams, etc. I then went to Mr. Sanders to arrange for shipping my boxes back to the states which he said could be done and shipped in two months, he also filled out a ship order for me for two wooden boxes and raise and reinforce lid on one of my old boxes which I took to Mr. Hutchinson's office at the refinery. I will have to give him an idea of the sizes needed. I put the order in for 2 boxes 40"-30"-24" and reinforce lid on #19. I went down and loaded on 4 boxes from the fish pier (3 were fish) and one nets and took them up to the storage house this afternoon. I also got my heavy rubber gloves.

I went fishing tonight off the end of the fish pier tonight with the hoop net. I caught only a few small fish scorpacids, dussumierids, and geroids & red shrimp. I saw a few gulf gubs but no snakes. There were a lot of one foot gars and silversides. I weigh only 155 lbs. and came over at 180 lbs., and I am still pretty weak on my pins. I sure will be glad to get back to the states. There were clouds in the sky this afternoon, small cumulus, and early this evening. It was hot during the first part of the night.

July 25 I went to Shahrman today. I typed up most of my museum box inventory this morning. I took the bus to Shahrman from 11:30 to 12:40 crawling and bumping along over

over the desert blast furnace. I deposited my gear at the club house, got my banking accounts which including the lastingly arab duty of \$30 (damn them), and also got some hemp from Joe Martin which he had saved for Ahmed for me. I slept and read during the afternoon. I attended the Shahran fishing club meeting at 7:00 P.M. and they carried on business with Mr. Weber, v.p., presiding apparently they were getting a trolling boat from Bahrain. I delivered my talk at 8 P.M. to about 60 people and boys. I talked till about 8:45 P.M. then questions and then I showed them specimens. Mary Leonardine seemed quite satisfied and Mr. Weber so I guess it went over alright, and the young boys asked quite a few questions.

July 26 - Perfect weather clear sky, clear vision, no wind, and no airplane trip!!! This is the fourth time it has been called off for no good reason at all; I believe they never had any intentions of making good on their promise. I am thoroughly washed up with the whole damn outfit and wish I had asked to go home Aug. 1st instead of Aug. 10th. Also Garley doesn't think we will make Jez Jenzal before the 10th, well I just don't give a damn. If I can find that porpoise and shark skeleton on Chaschase Island in the next day or two I will be satisfied. They won't fix the row boat, make oarlocks, keep the boat supplied, check the radio, or fix the charge motor; just nothing gets done. Mr. Teltman helped me check out at the carpenter shop about my boxes and they will start when I bring in the old box. We also went out to the plant and I wrapped the fish collection. This afternoon I sounded out my last night's talk on the typewriter 4 pages

and 4 copies. I also started the other day my box invoice. I got one letter from Lucile this morning and 2 this afternoon, and she had only received 2 letters from Jidda at that time, July 17. I went to the movies tonight and saw the Bachelor and the Bobby soxer (Cary Grant, Myrna Loy, and Shirley Temple (who is a very pretty young lady now)). At one disgusted moment Cary Grant was packing his trunk to fly to Africa and then he told the older man near him and then may be Arabia. The older man said "I think you are making a great mistake", and that of course brought the house down, it was so apropos.

July 27 - Fair, hot, and hazy today. I got my box of Jidda fish hauled over to the carpenter shop to raise the lid higher; I also got my tank of formalin from the boat, and headed for Shahran on the 1:30 bus. We made it in 1 hour and 5 minutes a record for me. I drove the last half because the arab almost fell asleep driving. I got the same room from housing, and paid my camera duty at the bank in ruppees. Then I went to see Jim Stewart to check over my list of additional fish names from the Persian Gulf. I also noted a saw from a sawfish which was given to George Renty from an arab at Al Khobar. It was 4 7/8 inches long with 32 teeth on each side. He also had a 5 inch ostrich egg from the desert. He also had a record of an ostrich being shot near Trans-Jordan. I never even knew there were ostriches in the Arabian desert. I also met Joe Smith from Hofuf who seems to be a nice fellow and is starting an agricultural experiment in Hofuf the biggest oasis and date gardens in Arabia. He wants me to look over the local fresh water fish situation. We will leave the day after tomorrow at 7 A.M. by car. It is about 80 miles quite a ride! But it sounds interesting. Our everlastingly post

poned airplane trips over the Gulf and outlying islands is supposed to come off tomorrow, in sha Allah!! I sent a copy of my Jidda fish names by mail to Jim Stewart. I also mailed another letter to Lucile. I went to the movies tonight as usual and saw "Repeat Performance" about an actress who lived a year of her life over again. It was not exactly a pleasant story but it was well acted.

July 28 - Thick heat haze this morning with the sun a dull silver. Visibility between $\frac{1}{4}$ & $\frac{1}{2}$ mile light only 25 on my meter. I met Ed at 7:30 A.M. and we left for the airport and as I had rather expected the flight was cancelled because of weather. I went to see George Renty this morning and got 4 photos of the saw fish saw; also a little one 9 inches long with 36 teeth on the left side and 35 teeth on the right side; the smaller one may be a different species.

About 10 A.M. Ed and I headed down to Al Khodan and south along the beach to El Azzigia. I walked a $\frac{1}{4}$ of a mile along the waters edge and there was some brown sea weed and numerous wind rows of thin reef grass or rather sand grass along the water's edge. The sky was hazy and a fair breeze from the north and the tide was just about flood and the water was surprisingly cool. I got quite a collection of shells including crab sheds and also about 20 shark vertebrae spread out along the shore over quite a distance. With a 20ft. minnow seine Ed and I caught some small Sillago, some very good and large Cyprinodon dispar, some small mullets, and one small Tetraper farata. Also we were privileged to see quite a bit of bird life along the shore: large brown plovers with black bills, large black billed curlews, one sandpiper,

several killdeer like sized plovers, one oyster catfish (black & white), several white gulls like terning gulls, several black headed gulls like Buena-
parte gulls, numerous small black capped terns, a large black billed sandpiper (possibly a plover because of short neck, but it was spotted grey and white with black spots), a large crow (possibly a raven), and a large flock of about 30 long legged short billed, short necked light brown with lower wings black & belly whitish sandpipers (which did not look exactly like sandpipers). They were about the size of the lesser yellow legs. I collected some sea weed as well as fish & shells, and the trip was quite a success. The sun became hotter, brighter, and more glaring as noon came on. The meat sandwiches we had were not appetizing, so when I came back to lunch all I could manage was apple salad, cake, & ice tea. Ed went back to Ras Tanura in the afternoon. I think it well to mention here the numerous brown pigeons with black and white tails and the brown horned larks (about robin sized) that one sees often around Ratf on the road from Ras Tanura to Shahran. I went to see Mr. Bier about the plane home, but he was out of town today.

I went to the movies tonight and saw Bob Hope and Dorothy Lamour, Peter Lane, and Bing Crosby in the last scene. It was a murder picture but was full of laughs from Bob Hope's wonderful humor. I am a complete movie addict over here now.

July 29 - Joe Smith, Dick Taggy, and I left for Hofuf from Shahran at 7:30 A.M. We reached Abqaiq at 9:00 A.M. and had a second breakfast. Abqaiq is quite desolate with very little greenery and is quite a bit smaller than Shahran or Ras Tanura. Between Abqaiq and Hofuf we passed numerous oases and wells and camels and a series of Jebels on our right. I saw a large tan pigeon, called a gutter bird, and also the single

large crested larks and also several halcyon martins by a well. In the wells and springs we saw numerous large and small *Cyprinodon dispar* and frogs. In one small oasis, we heard and saw numerous cicadas on the palm trees. Dick got hold of one specimen. They sound the same as the ones in the states and about the same size. We arrived about 12:15 at our native house in Kofhuf. The streets are all ^{quite wide} ~~road~~ and the houses built of white mud. The trip was about 90 miles and was not bad. In one spring pond I saw a red dragonfly, notonectids, whirligig beetles, and giant water beetles brownish in color. In some ponds there is blue green algae as there was in this. In others is bright green filamentous *Spirogyra* like algae, and other thick tan green scum algae. We were going to see the Emir at 4 P.M.; it turned out we did not go till 10:45 P.M. Benji-Louie sounds like part of his name. He is Emir of al Kasa and signed the letter for the Palestine. He looks about 45 and is fairly stout. He was quite and soft spoken but had humor, we first sort of explained our presence and business in mind which he already knew, but we did for courtesy. We stayed about 15 minutes or 20 then a round of coffee and tea. His guards were well supplied with swords in silver scabbards, and there were a few guns around. His throne was a sea blue with some decorations and there were simple sofas along side. He did not express optimism for larger fish which is a good sign, but was not against the idea. We slept out on the roof under the stars which was quite cool.

July 30- We slept under mosquito nets and in the morning Dick got a good collection of small sand flies (the bad kind), numerous culex mosquitoes including one male and one female *Anopheles*. This morning we went out in the field at 7:30 A.M.

with Sheikh Rashed as our guide, and Mohammed bin Salim as our interpreter. Outside the near by town of al Jaffar there was a small deep well, and a few small puddles where water had probably spilled and there was some green algae and they were full of small *Anopheles* larvae. From there we went to see the wells and springs ("ain") in the various date gardens. We also went to see the large lake "Asfer" which was entirely dry but was thick with small green vegetation bushes, sedge, grass etc. Then we went to see the large "ain's" of El Khadood and Al Hagul. El Khadood was the most interesting and the larger of the two but the head end was close to 50 ft. deep of clear water. There were also numerous rice paddys with about 3 or 4 inches of water. There were numerous grey frogs and also grey frogs with black spots. In one deep pond there was a brown and white flat shelled turtle about 10", and later in the day I saw a black painted turtle. There were a couple of large species of water beetles and I got them. I also saw quite a number of Trinch mullet (*Chelon*), but we could not catch them. We had one in the net a couple of times and they cleared the top line by jumping over. I thought I saw some *Gambusia* like fish on the surface of the turtle ponds, but they were probably *C. dignus*. Some of the billies are enormous and they are all rather darker in color than specimens from salt water. In one date garden I saw a small thrasher like bird with a grey back and reddish brown large tail; also a smaller wren sized bird grey with a black tail (also large). I saw a glimpse of highly colored light blue iridescent bird which Stagg said might have been a kingfisher. It was about that size. In the early afternoon, we went to Jebel Kasa a large

hill of reddish brown rocks of clayey substance. There was a long cave in one side which was 77°F inside and the outside air temperature was 117°F . We slept for awhile in the cave for a couple of hours. It was almost too cold for me. There were small silver wing bats flitting around the cave was not very dark. The sky light hole was about 110 feet above us, and let in a little sunlight. In the sand outside the temperature was 50°C . I lost both my stemometers today, one in the morning and one in the afternoon!!!

Before lunch we visited the Sheikh's house for a game of Kairam a pool like game with checkers. We also had some of the king's fresh dates, and they were good. They are put up in 2 qts. boxes made of palm branch wood. In Mohamed's family garden there were peach trees, figs, citrons, red dates, and yellow dates, and a nut like tree that produces the "Sim" berry used for fish poisons. The trees had a 3 inch trunk like a walnut the leaves were pinnately compound. The berries were like small green grapes. When we got back to the house at 7 P.M. we were bushed. But Dick and Joe were heroic and when back with me at 10 P.M. to El Khadood, and we saw another brown and white turtle, and saw and heard plenty of frogs croaking they sounded most like leopard frogs. I caught one male grey one with black spots. We saw less mullet than in the day time, and they were not near shore; so we did not seine. There were a few clouds in the sky before sunset. The weather was clear. The boys beat on tin drums a good part of the night and sang in sort of a whine, then there is the prayer caller who sounds like he is straining his voice. And then there was the gun that went off, and it was also hot.

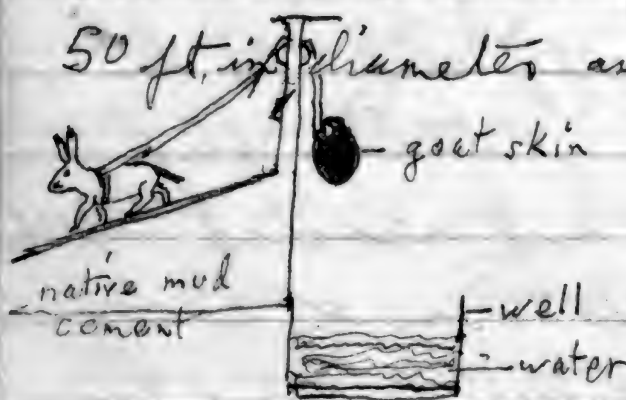
7/31 letter to Lucile
re: plane leaving Aug. 8

July 31- Today was fairly clear, and the three of us left for Shahran about 7:30 A.M. We got there about 11:30, and had stopped for a second breakfast at Abgaig. Mr. Johnson approved my getting a pick up to collect in Hofuf. I saw Ed Emley and he had two letters one from Hussein and one from Nat from Bermuda. I had a most miserable rough and hot trip to Ras Tanura from 12 to 1. There was no mail for me in Ras Tanura; they haven't sorted any mail for two days, that's the pay off. I got the poison from the boat and a dip net, and found out my plane the Gazelle, leaves Aug. 8th, which is sooner than I thought but I am inwardly glad. I got back to Shahran at 4:40, and Mr. Bier did not have my ration book but had it for me in the morning. Below the mess hall I saw a black and white woodpecker about the same size and color as the red bellied woodpecker. Its head was black and tail black. The tail was shortish and the bill long and it flew the jerky flight of woodpeckers. We visited the Bentzes then Taggy before supper. Jim Stewart wants me to take a watch to his wife in New York. We went to the movies to-night and saw "desert fury" with good color but little else.

Aug 1- Joe and I did not get away till about 9:45 A.M. I had to get my pick up at 5:45. He had a long talk with Mr. Johnson. It was 64 Km. to Abgaig and 72 Km. to Hofuf. It was a rough trip for my yesterdays sore back. We ate lunch at Abgaig at 11:30 and reached Hofuf about 2:30 P.M. I was bashed it was about 110°F in the house. I wrote several letters. At 5:30 P.M., Abdullah the house boy and I went to El Khadood. I used about 3 qts. of rotenone. The flow was fast and carried the cloud away quickly.

and for 2 or 3 minutes it seemed nothing appeared and I thought it was a failure. Then a number of mullet started striking the surface and acted crazy and even went up in a narrow small canal, so I picked up over a dozen 2-3 inches long. There were a lot of birds around who were a damn nuisance so I did not hang around long. The killies were also hit but it seemed to me that they were not as easily affected as the mullet, and very few large killies were hurt at all. Frogs were all over the place on the grass and they were eating small killies by the dozens. It was hot tonight and they drove a noisy truck back and forth near the house for an hour or so. Then the drum beaters started in again about 4 hours later, only they were louder and more of them this time.

Aug 2 - Cool at dawn and about 2½ hrs. afterwards when it was 88°F air temperature in the date gardens. It was hazy early in the morning with the sun a silver ball, but it cleared up later on. Abdullah Atif helped me again as my guide to the different ains. The three new ains we visited were all about N.E. of ain Khadood. In fact we passed over the stream part of El Khadood further east. The first ain we stopped at was Al Jeffur. It was a small ain with a small flow of water it was about 18 ft. deep and 50 ft. in diameter and was almost round. There was a donkey irrigation well near by which I have illustrated because there was not enough light to take a picture. I used the dip net and caught a frog, a painted turtle, several killies, water spiders, and stinging water bugs and a straight spiral ting snail which is not good news but there were



mostly curved spiral snails with thin shells. Frogs were abundant, and there was abundant dark green rooted chara like weed but no grass. The water was not as clear as most ains and there were apparently no mullet here. The donkeys that work hauling irrigation water are covered with old scars and fresh open sores and cuts and look in pretty rough shape. The rope and sweat probably cuts into the hide. The next ain a little further N.E. was another long ain with a deep round spring at the head end like El Khadood and a stream of fair size going east from it, and a small stream going west, thus it overflowed in two opposite directions. The water temperature at Jeffur was 87°F and 1½ hours later I got almost 89° at ain Frayhenna. Frayhenna is similar to El Khadood but is smaller. In the spring I got a reading of 30 ft. There were apparently mullet present. So I mixed the usual 3 quarts of poison and laid it deep in the middle of one side of the ain. It tended to drift towards the smaller outlet but slowly. It soon dispersed and within 2 minutes there were mullet rushing around the surface all over the place almost jumping out on the bank from the grass at the water's edge. It was quite a while before the killies were affected in mass, but when they were it hit them hard. Dead fish drifted as much as 500 yds down the big stream or few jumped into the entrance of the little stream some sank in the spring. Numerous fish were not recovered because a good collection had been made. I also got a couple of black leeches with red lined sides. In the house in the early morning I caught a small lizard

and a beetle. The next air, ^{"Mulh's"} we visited was more or less north, and was situated in front of a two story good looking Arab house, there were numerous rice patches around probably fed from this spring. And there were also some palms. It was large and square bordered by native cement. It was about 100 feet square. It was possibly 40 feet at its deepest part and root chara was growing at a depth of 25 ft. It was crystal clear water was a pretty blue color. I only took pictures here. There were no readily visible outlets but I presume there were some. I saw a few killies but no mullet. Because of all the frogs around my mind turned to the idea of bull frogs, for frog farming. This was the last air I visited, and we returned for lunch. I made quite a collection of pond weeds. All these three airs were in the same series of date gardens and were not separated by desert. At 3:30 P.M. the temperature inside the house was 108°F and outside on the concrete in the sun 131°F. air temperature in sun 113°F. This afternoon, I wrote a letter to Dr. Hora and wrote notes and wrapped specimens and helped the boys move their generator motor unit into place which was a job; then it was 7 P.M. Buck and Joe finally got the generator working and we had lights tonight, what a luxury! I worked on letters till 11:15 P.M.

Aug 3 - The drummers got busy on the drums and singing last night; I rather had hoped it would sleep thru them, but it didn't. Then some guys started playing a tuteo with a stick on a camel and the camels groaned, and I didn't sleep much after that. The generator plant ran well all night. We got up at 6 A.M. again when it is still dark, and had breakfast. This morning I

In the date gardens I saw a bluish skink lizard with black and yellow stripes on the back (about 8" long including tail) not far from Ain Khadud. 137

wrote my Hofuf report of my findings and recommended the introduction of carp, and a later experimental introduction of bull frogs. I also, at Joe's suggestion, drew up a short sub report on the possibilities of ~~stake~~ production of sardine fish meal and fish oil, and the use of trash fish and fish carcasses as ~~new~~ fertilizer. About 9:30 A.M. Joe and I headed for the date gardens and went far in to the east and fished in one of the eastern branches of Al Khadud. Joe wanted to look at some of the rice patches he is going to plough this fall. I was quite surprised to find mullet in small stream pools in two places. They are wider spread than I had thought. I used three quarts of poison above a pool just below a road culvert the pool was about 10 feet across 15 feet long and 5 feet in its deepest part. Water grass was very thick all over the stream above the culvert; it was only on the sides below. The temperature of the water was 86°F. There was also another hard chara like weed in one place close to the bank, and I collected some. There were hundreds of whirligig beetles, and a few water boatmen, etc.


This afternoon, Buck Dougherty and I left for Dha-hran which we reached at 6:30 P.M. and we stopped off at Ab-gaig as usual for a rest. I ate in Dha-hran and reached Ras Tanura about 8 P.M. and had some good mail waiting for me. I showed Ed my report, and we talked quite a bit about the survey till about 12 P.M. He showed me his report on the second air trip, and says he saw more pelagic fish than in March.

Aug. 4 - I got up at 5:45 A.M. got my pick up, had breakfast, and went out to pick up my stuff from the Palestine

I weighed 162 on the fish scales. Ahmed had some fresh "cut" for me. My boxes were made up in the carpenter shop. And I had quite a bit of hauling to do and unloading and loading. Ed helped me out. We left for Shahrhan about 12:45 and reached it about 2:15 P.M. I took my stuff (2 boxes) to the storehouse to hold for loading on the plane. I saw Mr. Bier, Cooper, Daggy, Sr. J. de Lougherty, Jim Stewart etc. I am to have my physical exam in Shahrhan Saturday. I saw a crow today which was a lot smaller than the raven Ed and I saw at El Azzizia, but it (the one I saw on the Ras Tanura road) was regular crow size. Ed and I got back from Shahrhan about 9:30 and were in bed dead tired at 10:15.

Aug. 5 - Up at 6 A.M. this morning but no trucks. I spent all morning wrapping and packaging specimens, but I finally got done; and am ready to go to the storehouse this afternoon. I borrowed Mr. Teltnin's truck and nearly died from sweating in that back storehouse, it was enough to drive you crazy. I knocked open the barrel and there was only a formalin stink; all the fish were rusty. I discarded about 10 fish including one large mackerel, the large sharti, a small hamoor, the large barracuda, a fashan, a *Lethrinus* melanurus, the large juffer, a couple of parrotfish, and one or two mackerel heads. The rest I saved and filled out my 8 gal. tank, I hope they do not discolor the other specimens. I got thru about 4 P.M. and then went back to the house for a shower, rested 1 1/2 hours. Typed the Hofuf report till 7:30, had supper, a haircut, and finished the report 11:15 P.M. And I was very tired, and I will be glad not to do any reports for awhile. I saved out box #16 with 16 gal. tank of rotenone for Ed Gurley, also gave him hypodermic

~~Aug. 6~~ syringe, 3 hypodermic needles, barrel of formalin 2/3 full, 1 25' minnow seine, 1 6 ft. minnow seine, 1 spool linen thread, tin tags, 3 regular cut curved needles, 1 fish gig, 2 eel pots.

Aug 6 - I got to bed about 1 A.M. last night but slept well and got up at 8:45 A.M. and had breakfast. Below is the approximate fresh color of the mullet from the Hofuf springs.  The silver stripe a-side between two black stripes is the most striking color of the fish or scatter marking. All the fins are clear except the caudal which is short and dusky. The under parts are white silver. In the water the fish has an olive green appearance from above. And as I said before they are all skilled jumpers.

at 11:30 A.M., Ed told me the "Tarut" was ready anytime, so I went over and got a bag lunch to take along. I got out to the fish pier about noon, and went out to get the row boat which was half full of water. There is still only one oar lock, the two ordered several months ago never appeared. The bottom of the Palestine looks like a forest from sitting around the pier so long. All these signs hardly make me regret that I am leaving ARAMCO. Saif engineer and a new Abdullah from the "Palestine" were the crew. Incidentally 4 Abdullas have been crew on the "Palestine." We left that fish pier about 12:30 and returned about 8:00 P.M. shortly before sundown. Our course was mostly south by east from Ras Tanura. There was a light northerly wind when we left, and the Gulf was calm, but by the time we passed abeam the new Dammam pier the wind freshened N by W to small

140 we saw a dead abermes hains floating when we cast anchor ~~west~~ of Charchuse Id.

white caps. The wind was even a little stronger on the return trip, and was quite wet. There were quite a few small high cumulus and cirrus clouds in the sky. There was a distant haze but visibility was good a couple of miles or more.

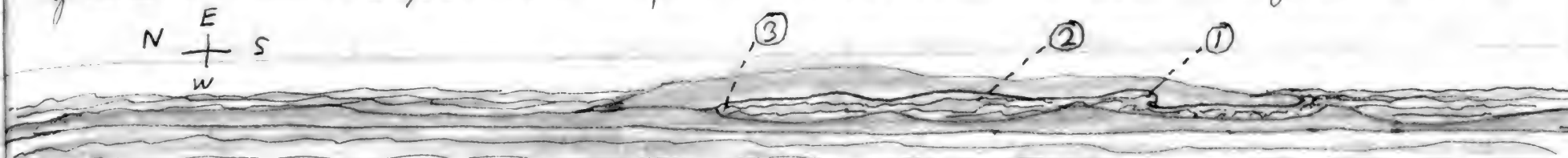
The tide was ebbing and near dead low at Ras Tanara at noon. It was starting to come in when we reached Charchuse Id. We anchored off the west side of Charchuse Id. and I struggled ashore paddling the rowboat; of course I had to bail it out first. Being Ramadan etc. I had the crew stay aboard. I passed over a pretty large area of live coral; fringed coral and brain coral in about a fathom of water. I saw no fish but visibility was not good. Inside of the coral area was a coral rock area which was alive with black short-spined sea urchins. I did not tarry for them, however, because I had business ashore. The last 200 yds. or so was sand bottom from 2 to 3 feet deep.

There were about 30 cormorants sitting on the sand beach, and they took off a bit when I arrived on shore. I went over to the east side where we anchored once with the "Palestine" where the water is deeper a lot closer to shore, but there might be some coral rock bottom there also. I saw a group of coral rocks sticking out from shore, and there was a whole flock of terns about 50 (the white and dusky ones) and one oyster catcher.

On the way to Charchuse we passed a single mast dhow with a pointed stern and a crew of about 20. Saif said it was a ^{Bur}Burish boat, and is called a "fassi." I looked for the porpoise skeleton along both shores in vicinity of the inland pond, but being the island is at least a mile long at low tide, I decided to forego racing all over the beach. The air temperature in the boat cabin while running was 38°C, 39°C in the sun outside the cabin, 48°C

on the deck in the sun. The water temperature just under the surface of the water inshore was 39°C, and also the pond temperature was 39°C. The air temperature was about 40°C in the sun. The island is all bare sand except for about a dozen or so widely scattered small glass wort like plants. A few minutes later I saw 3 oyster catchers

N
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Charchuse Id.

flying along with their distinctive single whistle note. The above illustration shows the approximate position and relative size of the ponds of Charchuse Id. The ponds empty to the south and out the east end of the island. They are also situated towards the southern end of the island. The bottom of the inland ponds varied from sand where the tide was strongest to mud sand where the tide was not so strong in the ponds. At low tide the deepest part of the ponds might have been 5 ft., but it was hard to tell by looking. There were 2 real connected ponds of roughly 200 feet in diameter. The only vegetation was a green sea algal. The tide continued to go out of the ponds at least a half hour after the tide started to come in. This was the case when I arrived. I poisoned 2 places one a little side pool with a narrow connection to the main stream at the south end, and pond no. 2 near the center, and one small billie in the far reaches of the upper end in about a 1/2 inch of water.

At the water's edge of the north pond I saw 2 large sandpipers one looked very much like a ♂ turnstone with the black throat and brown back, the other was probably a ♀.

On the high part of the beach just west of the ponds I saw about the weirdest bird I ever laid eyes on. Because it teetered a couple of times I imagine it was a sandpiper; it was slightly

smaller than a hilldeer (but there the resemblance ends). The bill was long and black and the flat narrow crest was exactly parallel with it sort of like a shoe maker's hammer.



The bill also curved slightly downwards. The head and underparts were a tan sand color the wings and tail were white strongly barred with black the feet were black and not particularly long. The crest disappeared from sight in a miraculous way in flight, sort of the way herons (especially the "quacks") flare their necks in flight. From then on I ignored birds. There were some cat's eye snails and ^{the} other ones in the rocks on the east side (already mentioned) and some of those purple black crabs.

In area ① I used a half gallon of rotenone, and recovered 2 *Platycephalus*, numerous mullet, *Sillago*, *Hemirhamphus*, *Sparus dataia*, and a couple of *Tetraodon* fishes. In area ② the center of the pond was dark in color I thought it was bottom grass, but when it moved en masse I saw it was solid *Atherinids* both the white finned and black finned varieties. There were also numerous mullet, some *ifti*, *Sparus dataia*, *gerriids*, a few small *Largemouth*. Some larger fish were cutting the school up, and I had a glimpse of one about 10 inches long and it looked like a grey snapper but might have been an *S. curieri*. The *Atherinids* really took a beating from the poison, and were along the beach for quite a ways they were all medium size $1\frac{1}{2}$ - $2\frac{1}{2}$ inches. The mullet reached possibly 4 inches. I packed all the fish in ~~that~~ it could into two small bottles and left. I cursed and sweated all the way out in the row boat using the net handle as an extra oar lock. Saif had started the motor up which helped and we got off back to Rao Tunura. I

143
letters - Lucile, Schultz with Hopif report, Hopif reports to Smith, Ohligier, Aug. 7 and Taggy. Letter to Mary Leonardini
rested a while till the boards got too hard. There were ~~Heer~~ 12 freighters around east pier. The tide was about flood when we reached the fish pier. I stayed up late getting things ready and packed up.

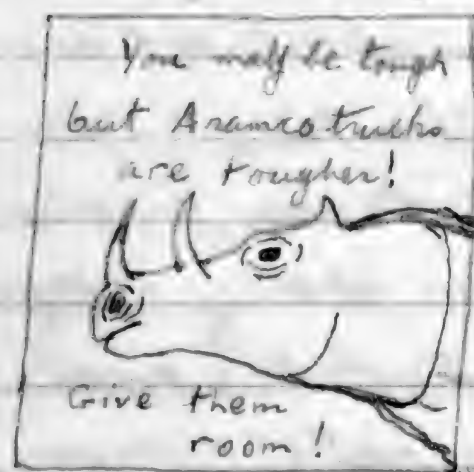
Aug 7 - Up at 6 A.M. got things in order, and stopped by Teltman's office to give him two ~~copies~~ ^{red} of my inventory for the equipment, and I met up with a fellow, ^{Ned} Stanich who is going to Shahrin, but even he had his troubles getting transportation. I finally got an ideal car, a coupe with a trunk back, and we arrived in Shahrin at 10:30 A.M. and I got Jim's watch to take to his wife, and found out that my plane was leaving Aug. 9th instead of Aug 8th. I dropped a lot of bottles off with Taggy, and they wanted me (Mrs. Crawford to look up Paul Oman's museum). I finally got my 3 ruppees back from the Aug. 1, breakfast I paid for. It was quite an involved procedure. I had good luck getting my boxes from the storeroom by taxi, and am back again at 1411. Later I talked with Mr. Savage and later Mr. Duncan on my ideas of the fishery problems. I told them I thought the outlook was very encouraging as regards the fish supply. I took my physical exam about 5 P.M. and I was O.K. and now weigh 165 lbs. so I am gaining steadily. I used up my 25 ruppees buying 5 T-shirts, because I would have trouble getting dollars for them. Jim gave me his corrected list of Arabic fish names, and he had found out quite a bit.

This evening, I saw Abbott and Costello in the "Widow of Willow Keys" which was quite amusing; the chief crack being marriage is a 3 ring circus; an engagement ring, wedding ring, and suffering.

Aug 8 - I had the runs last night after sort of a stomach ache, so my sleep was rather interrupted. But I managed to stay more or less unconscious until 9:15 A.M. Teltman called yesterday to say there was a lot of mail for me and he would try to send it down, or it could come up for it. I don't think I am in the mood to go up for it. I worked all morning copying down a list of corrected scientific, English, and Arab names for the Persian Gulf.

This afternoon there was still no mail so I went up to Ras Tanura and saw Teltman and he said he had sent it down; so I went back again, and still no mail. So I went to see Joe Kefthar and he said they had the motor out of the "Bazelle" and the plane would not leave tomorrow. Later he came around with the mail which cheered me up a bit. Vince came in for a talk later about snakes, etc., and that passed the time till 8:25 P.M., and I just squeezed under the rope for supper. I went to bed early.

Aug 9 - I got up late and it was fair and sunny and I feel better today than yesterday. They had a safety poster contest yesterday, but only one appealed to me. It was the only one that hit the real point, and was really original. I did not vote, however, as I am not a regular employee. The others were all similar and sort of the polyanna type, about what a good thing safety is etc. This morning, I went to see Jim to get some corrections on



the fish name list, and I copied the list back into my log again; so when questions arise I can easily check back. I got my fish name list pretty well corrected and

back into my log. I left a copy with Jim Stewart with my corresponding numbers. I also checked Maj. Lane and Selegard for name similarities with steins and my names, and entered them on pp. 168-169. I talked with Mr. Edwards, Jr. from Al Kharij today at lunch and he gave me some interesting information on the springs or "ain" at Al Kharij. He says they are not very wide but are very deep as much as 70 feet (?), but they are in the open without shade and apparently almost no vegetation and the sides fall off towards the bottom in ledges. He did not say that there were any fish there, but from what he said the prospects do not sound favorable there at all. He also said he knew C. B. Nelson at Jidda, who had attempted to set up a shark industry in the Red Sea, and he told me where I might find out his address in the States. I think Dr. Kilderbrand knows Mr. Nelson. It seemed hot again today, but may be I am getting soft from the air conditioning.

I saw Joe again today and the prospects for departure tomorrow of the "Bazelle" do not look good, but he said if it does leave he will let me know by 5 P.M. I guess my luck just isn't good. The bad news came again, the plane will not leave tomorrow. I wrote a short bit on Arab name similarity.

This evening, I went to the movies as usual and saw "The Miracle of 34th St" with beautiful Maureen O'Hara and John Payne. It was centered around Macy's Xmas parade and a true Santa Claus.

Aug 10 - I had the runs a bit last night, so I got some paragonin & pills at the clinic. Then I went to the library where it opened and read most of "The Shenandoah" by Julia Davis which was an interesting and detailed history of this beautiful section of Virginia, which is really not far from our present home.

This afternoon I read some more of "The Shenandoah" and also a story by Tichen's centered around "Belize" an island off British Honduras. The title was "The Hardships of certain English prisoners" or something similar. I found out the bad news again tonight that now the "Gazelle" is expected to leave Thursday so I am doomed another day in Shahran. I met Se Sa Har tonight and he was very friendly and seems to have a real understanding of a scientist's frame of mind.

I scored up 2 or 3 games of chess this evening in the club house which helped to pass the time pleasantly.

Aug 11 - Article on similar fish names sent to "Sun and Flare". I feel better today, and rumors still persist that the "Gazelle" is going to leave tomorrow. I went to the library this morning and read short stories, and attended the morning movies. In the afternoon, I continued reading short stories. At 4:30 P.M. I found out the unbelievably good news that "the Gazelle" is leaving tomorrow. That is the best news I have heard for 5 months. That means we ought to get to New York Sunday, I hope. I guess I would never quite have realized how much I would miss Lucile, till these 5 months; but now it is good to be homeward bound. Ed Burley came down to Shahran tonight.

Aug. 12 - Sometime early this morning an Indian or Arab stuck his head in the door (it later turned out to be 3:15 A.M.) and I of course assumed he was my chauffeur. I would have been completely convinced it was "sand happy" if Ed had not also seen and responded to this same apparition. At any rate we carried out the bags after getting dressed and there was no Arab or pick up in sight. So Ed went down to the car pool to get his car, and I phoned the pool meanwhile

and found out that it was 3:30 A.M. and the guy was convinced that I was seeing things. Ed came back afterwards while with his car and said rumors were that the "Gazelle" might not even leave. So I showed him my latest notes, and then we went and had breakfast around 4:15 A.M. We dashed back to the car pool around 5 A.M., and the cheerful news that the "Gazelle's" flight was postponed indefinitely was reconfirmed; so we went back to bed. I got up again about 8:30 (??) and called Joe and he confirmed the news and said they would try to get me out some other way, but that my equipment might present a problem, at any rate more could be found out later. To say that this is a disappointment to me would not only be an understatement but rather an anti-climax.

I spent the whole morning in an office reading short histories of Arabian states awaiting the verdict on my fate. My two boxes are to be shipped when and if a container is obtained for the "Gazelle" in the States (two weeks or more at least). I can leave via Pan-Am. on Monday, Aug. 16th. I started reading this afternoon Mrs. Ralph Riches "We took to the Woods" which Lucile has just read. This evening, after supper I fell asleep on the bed with the lights on, and I didn't turn them out for the longest time.

Aug. 13 - There was a fairly strong N.W. breeze early this morning and it seemed cool until nearly 10 A.M. I had breakfast around 9 A.M., and then went swimming in the pool for an hour or so. It is nice but rather small, and is best like it was when not crowded. I also talked with the "Camel" pilots and they explained the Gander route because there are too many head winds crossing directly west to New York.

Then I went to the movies and saw Red Shelton in "Berton of the movies", which was an amusing comedy. This afternoon, I read more of "We took to the woods" and it is very pleasant and informative reading. This evening, I started composing a vindictive about the Arabian fly.

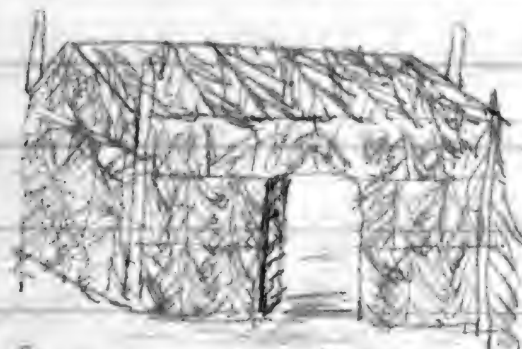
Aug. 14 - Today I took my two boxes to George Jeannette at the new storehouse, and he will take care of them to send them on the "Gazelle" when it goes. It is charged to SP 6620, and I think they are in good hands. I made the 8 A.M. bus to Ras Tanura and they are scraping the road and the desert wasn't too hot at that time. I did find my Persian Gulf coast pilot in the boat, and arrived just as Burley was moving to his new room, so I was drafted along with Ahmed. This afternoon, I got interested in "Lovers of Life" a novel of a 17th century Flemish artist, which read up the afternoon, but I was able to close the book and take the 6 P.M. back to Shahrhan. And a very interesting talk with 2 other fellows developed on labor and management and some of the drawbacks that exist over here. The trip was pleasantly cool; I had more or less sworn that I wasn't going to take any more desert blast furnace trips in the middle of the day. I had a new roommate again tonight.

Aug 15 - Fair and hot today. This morning, I spent over in Saggy's office getting his various specimens plus some films to be mailed to his Mother. We also went out to a private lawn to collect some leaf hoppers for Paul Oman at the U.S.N.M. Saggy got hundreds of small ones just by sweeping back and forth with an insect net over the tops of the grass. It took

me sometime to sort them into alcohol vials. I called Joe Keftner the housing personnel and the Pan-Am is leaving 5 A.M. tomorrow morning. And we are to go for a baggage check 6:30 P.M. today from the mess hall. I am glad we are leaving early tomorrow morning.

This afternoon, I went on a field trip with Saggy and Joe Smith who was in town. Joe was rather surprised to see me! We went as far as the outskirts of Qatif, and stopped at two places near Dammam, and one at Saihat on the way. Saggy was after mosquitoes in the local "beacities", and Joe was anxious to meet an Arab in Dammam (or rather in a nice house in a garden nearby). He is an Egyptian, ^{Hassain} from Cairo and has written a book on Arabian agriculture. The first place we stopped at was a rural home. Saggy disappeared inside to collect mosquitoes. Joe and I looked at a small spring and a date garden nearby and looked at the outdoor bedding. Then on the Egyptian. The spring we looked at at the first place was 36°C with the air 41°C. Ain "Tiwaze" was its name there were some blue greens and no fish. The Egyptian's garden had even roses and other pretty flowers, alfalfa, etc. We left Joe to talk farming, and went on to Saihat. While Saggy disappeared after mosquitoes again I took a few pictures and looked around, and found a small pool about 3 feet deep and 4' in diameter. It was full of long spiral snails, 0.48-1.63, some of which I collected, a few notonectids, and a little blue green, and a lot of brown scum algae. To go back, Saggy and I saw an iridescent bright blue green crow on the fence of Hassain's garden. I am glad Saggy saw it, otherwise, I would have assumed that I was just seeing things.

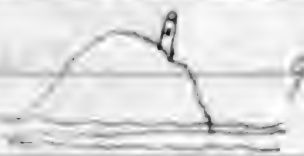
Beyond Damman the road was unfamiliar to me. As we approached Qatif we passed a summer Bedu village in the outskirts with the old Portuguese fort on a small hill in the background. I wished I had saved some film for it, but I had rather wasted it at Saibah. We stopped just this side of Qatif and passed a field full of melons, and then went in a gate and back to a native hut with a crew of Arabs and numerous black goats. It was a typical native palm



hut, and Peggy built down with his sucking bottle and tube which suck in the mosquitoes. There were a few in the darker parts of the room in the palm leaves of its wall just above the floor. We got about 2 dozen and it was 104°F inside even with shade. The roof was hardly rain proof. We returned and found Joe had eaten several water melons; Hassan persuaded us to stay, but we had to get back to Dhahran, so I could make the 6:30 bus to the airport. I had time to swallow supper whole in 15 minutes and make the bus, and then out to the airport for customs and to weigh baggage on the plane which took about 2 hours, then back to Dhahran again, to leave for airport at 3:30 A.M., a rugged life! We saw dates drying on the ground.

Aug. 16 - To say that I really slept last night would be an untruth. I tried to drink plenty of water to be sure I had to get up. But as is so often the case water does not have the expected effect here. I only got up twice to phone for the time 1:30 A.M. and 2:27, the second time was just right to make a 3:00 A.M. breakfast, and get on the bus at 3:30 A.M.

Then I left Dhahran for the last time (though I had my doubts for awhile) without regrets. We were all on the plane at 5:00 A.M. ready to go. One of the ~~beater~~ jumpers for a carburetor didn't go so there was a 6 and $\frac{1}{4}$ hour delay until they finally got the thing fixed, and we left at 11:15 A.M. Meanwhile ironically enough the "Bazelle" left at 8 A.M. (I hope with my books aboard.) I will not enter into how time was passed; it barely crawled along, and the candles were hard to sleep on. There is mostly just sand between Dhahran and Damascus. We arrived at Damascus about 3 P.M. There are many beautiful gardens and cultivated fields in the area of Damascus with numerous trees but all apparently planted. I saw a large buzzard like bird tan in color with black and white wings. There were also English sparrows, and the crested larks like the ones in Arabia. There was a willow like tree in the center of a small park, but probably none of the greenery was originally native to the valley. There were barren sand rock mountains approximately north and south of Damascus walling the city in a valley. We had lunch at Damascus airport, and left without trouble in about 1 hour. We arrived in Istanbul about 3 hours before sunset. The airport is several miles from the city. The sea of Bosphorus is surrounded by steep and rather barren hills, but with some apparent scrub tree growth. There was quite a strong northwest wind with white caps on the sea. I saw a couple of dhows like rigs and one small fore and aft sloop with two jibs. Flying over it the water was very clear with a tropical look to it. The air was quite cool almost cold and there was a short spell of rain from large cumulus clouds. There was quite a pretty sunset. The fields around the airport were covered with a rough thin tan grass something like

the fields by the sea in New England. A small kind of quince
 and here was abundant, some old white daisies, small milk
 like weeds, yellow daisies, 2 or three kinds of thistle with
 one kind with a bright blue stem. I saw one maple tree
 with leaves shaped like the sugar maple, but it was different
 and then locusts just like *Robinia pseudoacacia* except
 the bean pods were thinner and less than half as long.
 There was one wind mill just like ones on Long Island, and
 there were gulls like herring gulls only smaller. To the south
 across the water were two barren dunpling like islands, the
 ground or rock was tan in color, and we had a white
 light house on it. They were in the process of
 finding trouble with the airplane, but after some delay, we
 finally got off after sunset, bound for London. We also
 ate at Istanbul. We arrived in London around 4:00 A.M.
 The night was clear and we passed over strips of sea
 and I also think the alps or some mountains which looked
 high and rugged. London was a pretty sight from
 the air with its myriads of yellow, white, and light
 green lights. Our welcome in the London airport consisted
 of watered coffee and hard bread sandwiches and a long
 wait. The starting of a bridge game ended it nicely. We
 left just before dawn.

Aug. 17 - Our next stop was beautiful Shannon Ireland which
 was beautiful and green with lush green fields and rounded
 haystacks, and the beautiful wide Shannon river. We
 got a royal welcome, and a wonderful breakfast, and
 and were sorry to leave.

We had a good trip to Gander with, however, a head wind
 of 33 m.p.h. and at 10,000 ft 50°F outside, and wound

70°F at Gander. The greenness and the blue lakes of Gander
 were beautiful to look at. Even in summer the evergreens
 are far in predominance. We stopped at Gander
 long enough ~~so~~ that I could send a cable to
 Lucile, and cut my chin with a borrowed
 razor. It was the shortest stop.

We reached La Guardia 5 p.m. New York time.
 Then we waited around interminably thru customs,
 but I was lucky, and did not have much delay
 once my bags were looked at. It was swell
 to have Lucile and all the family waiting for
 me at the airport, including George and Gladys.

We ~~reached~~ left the airport probably after
 6:30 P.M. and all had dinner at the apartment.

Reptiles & amphibians collected for U.S.N.M.

Rana ridibunda

Hydrophis sp.

Emmys c. caspica

Chelonia mydas (baby loggerhead)

Diplometopon zarudnyi (worm like lizard)

Khaduf Spring, Al Hasa R.H. Daggy

Revised list of Fish names (cross referenced) ^{Phylogenetic order}
_{after Bigg}

Scientific name	English equivalent	Persian Gulf	Arabic Red Sea at Jidda	remarks
1. <i>Carcharias</i>	true shark	naud (small) yaryūr khattaf (large)	oz (small) guerche (large)	
2. <i>Chiloscyllium griseum</i>	mouse shark	hayyasaḥ		
3. <i>Zygaena</i>	hammer head	agran		
4. <i>Pristis</i>	saw fish ray	sayyafī		
5. <i>Rhinobatus granulatus</i>	guitar ray	hirairī (small)	mihrat	
6. <i>Rhynchobatus djiddensis</i>	dark spotted guitar ray	sūs (large)		
7. <i>Trygon gerrardi</i>	sting ray	lakhmah		
8. <i>Chirocentrus dorab</i>	large tooth herring	ḥiff		
9. <i>Chanos chanos</i>	milk fish	salmonī	salmonī	
10. <i>Trygon sephen</i>	sting ray	lakhmah	lugetta	
11. <i>Dussumiera</i>		ūm		
12. <i>Dorosoma</i>		twāf		
13. <i>Engraulis</i>	anchovy	ūm		
14. <i>Sardinella</i>	sardine	ūm		
15. <i>Plotosus anguillaris</i>	poison catfish	'āī		
16. <i>Arius thalassinus</i>	sea catfish	kimm		
17. <i>Ophichthys</i>		naukūkah		P. Gulf
18. " ?				Red Sea
19. <i>Gymnothorax flavomarginata</i>	morays		shaka	
20. <i>Gymnothorax javanicus</i>	"			
21. <i>Gymnothorax buroensis</i>	"			
22. <i>Gymnothorax petelli</i>	"			
23. <i>Gymnothorax sp.</i>	"			

	English	P. Gulf	Red Sea	Remarks
24. Conger	conger eel			
25. Tylosurus	bill fish	hāqūl (large), ubbari (small)	hilm	
26. "	"			
27. Ablennes hians	flat sided bill fish	ghurraidhī		
28. Hamichthys	sils			
29. "	"			
30. Dermogenys				
31. Exocoetidae	jack flying fish	jarradah	abu tayar	
32. Cyprinodon dispar	Killy fish	uftī, haracīm (Hofuf)		
33. Syngnathidae				
34. "				
35. Hippocampus	sea horse	wuzz		
> Atherinidae ^{see 146}	silverside	man kūzah		
36. <u>Pegacidae</u> <u>Pegasus volitans</u>				
> Mugilidae ^{see 145}	mullet	maidī, biauh, ^(Hofuf) hurt	arabī	
37. Variola louti		Ⓐ	lūtī	
38. Grammistes sexlineatus				
39. <u>Scorpaenidae</u> <u>Red Sea</u>			kūshar	
40. "	"			
41. Epinephelus tauvina		balūl (small), hamūr (large)		
42. <u>Scorpaenidae</u> black group		subaiti burtam		
43. " spotted		kanai nūwah		
44. Terapon jarbua	target fish	dhīb		
45. Terapon		zamrūr		

46. *Pelates quadrilineatus*

47. *Apogon fraenatus*

48. *Apogon thurstoni*

49. *Apogonides ruber*

50. "

51. "

52. "

53. *Cheilodipterus lineatus*

54. *Sillago sihama*

55. *Caranx P.G.*

56. *Caranx "*

57. *Caranx R.S.*

58. *Trachurus*

59. *Decapterus?*

60. *Chorinemus lysan*

61. *Trachinotus*

62. *Lutjanus red P.G.*

63. *Lutjanus spot*

64. *Nemipterus*

65. *Scolopsis personatus*

66. *Scolopsis*

67. *Gerres oyena*

68. *Gerres punctatus*

69. *Plectorhynchus*

70. *Plectorhynchus*

71. *nagels*

72. *Mullidae*

73. *Upeneus tragula*

74. *Lethrinus nebulosus*

75. *Lethrinus miniatus*

76. *Lethrinus R. S.*

77. *Sparus spinifer*

78. *Sparus datnia*

79. *Sparus curieri*

80. *Sparus bifasciatus*

81. *Crenidens*

82. *Sparus haffara* (Forsk.)

83. *Sargus noct*

84. *Cirrhitus*

85. *Platax*

86. *Heniochus acuminatus*

87. *Pomacanthus maculosus*

88. *Megaprotodon*

89. *Chaetodon*

90. *Chaetodon*

91. *Chaetodon*

92. *Pomacentrus* P.S.

93. *Abudefduf*

94. *Abudefduf*

95. *Dascyllus aruanus*

96. *Pomacentrus*

97. *Pomacentrus*

98. *Pomacentrus*

99. *Scarus dussumieri*

100. *Scarus*

101. *Scarus*

102. *Scarus*

103. *Labridae* P.G.

104. " "

105. *Chaetodon* skins

106. *Epibulus*

107. *Cheilinus*

108. *Cheilinus*

109. *Labridae*

110. "

111. "

112. "

113. *Pseudochromidae*

114. *Pseudochromidae* P.G.

115. " R.S.

116. " R.S.

117. *Haliophis guttatus*

118. *Siganus siganus*

119. *Siganus*

120. *Ctenochaetus strigosus*

121. *Acanthurus sohal*

122. *Acanthurus*

123. *Zebrasoma veliferum*

124. *Mugiloides*

125. *S. microlepidotus*

126. *Thunnus*

127. *alalunga?*

128. *Scomberomorus commersonii*

129. *Scomberomorus guttatum*

130. *Rachycentron canadus*

131. *Echeneis naucrates*

132. *Periophthalmus*

133. *Periophthalmus*

134. *Gobiidae*

135. "

136. "

137. "

138. *Callionymus*
 139. *Petroscirtes punctatus*
 140. *Blennidae*
 141. "
 142. "
 143. *Sphyraena* jidd (large) agam
 144. *Sphyraena* dwarf mī (small)
 145. *Chelon* maidī, biauh arabī
 146. *Atherinidae* man kōzah
 147. "
 148. "
 149. *Serpsinidae P.C.*
 150. "
 151. "
 152. *Platycephalus*
 153. *Brachirus orientalis*
 154. *Balitoridae*
 155. *Soleidae*
 156. *Triacanthus indicus*
 157. *Rhineacanthus aculeatus*
 158. *Paramonacanthus*
 159. *Balistidae*
 160. *Chelonodon patoca*
 161. *Arothron*
 162. *Arothron*
 163. *Lagodon*
 164. *Batrachos grunniens*
 165. *Myripristis*
 166. *Holocentrus*

Moawad M. Mohsen

Marine Biological Museum

Ghardaga, Red Sea Egypt

artist and director of museum

does water color paintings of fish

English

arabic

spotted grouper

Kūshar abu addis

lūti = sharratah

small wrasse = rakadah

Caranx = seliekh

Octopus

amfasees

Platycephalus

daffan

Parapercis

wuzagh

moray

shaka

guitar fish

gh mihrat (p'low)

water color paintings

Chaetodon auriga

mishait, mishit

Holocentrus sammara

bausa'y

Acanthurus elegans

sohal

Trachinotus

zimah regme

Rhineacanthus aculeatus

Higma 'pig'

Cheilinus lunulatus

abu meles

Coris

gurat al bahar

Serranus sumana (brown)

Kushar

Upeneus flavolineatus

Ember

Plectrohynchus

guttreen

Similarity of Fish names (Persian Gulf and Red Sea)

There are few animals or plants that bear a greater variety of names for each species or kind than do fish. The catfish of the middle west is the bull head of New York and the horned pout of New England. Even as small an island as Puerto Rico has one name for the thread herring on the west coast and another on the north and east coasts.

There are also a few cases of a fish name being common between languages (sometimes with slight variation in spelling).

The half beak, *Hemirhamphus*, is known in Spanish as the "bally hoo" in Puerto Rico, and is likewise named by the French, English, Dutch, and native creoles of the Lesser Antilles.

In the Persian Gulf there are a few names which are similar between Persia, Bahrain, and Saudi Arabia. For comparison I have used three references: H. Blegradi's "Fishes of the Iranian Gulf"¹, W. H. Lane's "Game Fishes of the Persian Gulf"², and my own notes taken in Ras Tanura, Bahrain, and Jidda. In all there are 51 names that have an approximate similarity.

From a single look at these names one can say that these fishes are among the best known, most abundant, and most edible fishes or in one or two cases they are fish to be feared because of poison or dangerous spines such as the scorpion fish "farjal" and the sting ray "La Khmah."

The large spotted grouper, *Epinephelus tauvina* is known as the "hamar" from Ras Tanura to Jask, and possibly is so named all over the Persian Gulf and the Gulf of Oman. Even the name "balul" of smaller *E. tauvina* is also common to the 3 references and these different places. The large mullet, *Megil*,

is called "biakh" and is also common to these 3 references. Blegradi's work covered the greatest area and the longest period of time, his work consisted of repeated fishing trips to the area of Jask on Persian Persian coast which is actually in the Gulf of Oman. His work consisted of 5 months covering Ras Tanura, Bahrain, and Jidda.

Between the Red Sea and the Persian Gulf there is no similarity of names, with the sole exception of the shrimp "subyan". There is, however, the name "wuzāfah" which in Bahrain and Ras Tanura refers to a type of sand lizard that lives on the beach. At Jidda, the same name refers to a kind of sand perch, *Parapercis*.

Some fish names, if not quite a few, are common throughout the Red Sea and the Gulf of Aden. For instance, *Cybinus comersonii*, the king mackerel is known as "darak" in Jidda and Aden, and also the mullet, *Megil*, is known as "arabi".

The fisherman's last hope then is that the scientific nomenclature is standardized with one name for each kind of fish. Unfortunately this is not the case, except in a few instances; but it is the ultimate ideal of most biologists at some date in the distant future.

D. S. Erdman, 8/9/48

¹ Blegradi, H.

1944 "Fishes of the Iranian Gulf"

Danish Scientific Investigations in Iran, Part III, Copenhagen

Publ. Ejnar Munksgaard

Lane, Maj. W. H.

1916

Game Fishes of the Persian Gulf, Part I

Trans. Bombay Nat. Hist. Soc. vol. 24, no. 4

1917

" " " " " "

vol. 25, no. 1

Name similarity between regions

(note: all numbers # refer to pp. 171-5 unless otherwise designated)

Major W. H. Lane (Bombay Nat. Hist. Society) see pp. 176-7

1. Caranx speciosus kabdar (see #100)
2. Serranus miniatus bahilool see Blegvad #14 & #45
3. Mugil bi-ach see Blegvad #13 & #94
4. Serranus stoliczke hamur see Blegvad #12 & #45
5. Polynemus tetradactylus rajgoo (see Blegvad #1)
6. Caranx ciliaris kush " " #2
7. Sphyræna obtusata koot " " #3
8. Serranus areolatus ledum " " #4
9. Lutjanus? Lethrinus? giddie " " #5
10. Hemirhamphus moran " " #6
11. Drepane punctata shungoo " " #7
12. Chorinemus lysan sarin " " #8
13. Cybium comersoni seer " " #9
14. Lutjanus argentimaculatus surkhoo " " #10
15. Echeneis sukhulla " " #11

H. Blegvad "Fishes of Iranian Gulf"

- Eleutheronema
1. (Polynemus) tetradactylum rash goo
 2. Caranx armatus, C. speciosus, C. chrysophrys Kash (Larak)
 3. Sphyræna sp. koot (Bushire)
 4. Big Lutjanus or Epinephelus ledam
 5. Lethrinus sp. gedee
 6. Hemirhamphus sp. moran (Dobei)
 7. Leiognathus equulus, Drepane, Ephippus shangoo
 8. Chorinemus sp. sarm (Bender Abbas)

H. Blegvad fish names

9. Cybium guttatum sheen
10. Lutjanus coccineus sorkhor
11. Rachycentron canadus sokalah (Jask)
12. Epinephelus tauvina hamoor (large) #45
13. Mugil ~~blussumieri~~ (large) beeah #96
14. Epinephelus tauvina bâlool (Bushire) #45
15. ~~Caranx~~ 15. Crenidens crenidens bataam #28
16. jellyfish dool #84
17. Leptosynanceia melanostigma fariallâh #19
18. Tetraodontidae fogol #77
19. ~~fish~~ crab gab gob #15
20. Echeneis naucrates lazâk #91
21. Trygon & other rays loghmeh #72
22. fish (Iranian) mâhee #104
23. Mugil (small) meid #142
24. some clupeid fish omek #22
25. prawn (Penaeus) rebioon #56
26. Teuthis siganus saafee (Bahrain) #67
27. Sparus curvieri sebeitee #4
28. Lethrinus shahree #46
29. Sparus dataia shâ-ôm (Bushire) #29
30. Rhynchobatus djiddensis soos (Jask) #63
31. Platycephalus weahar #26
32. Plectorhynchus schotaf yennam #6
33. Chorinemus etc. zardeh #88
34. P. schotaf, P. pictus jennam #6
35. Dorosoma species goaff #13
36. Sparus bifasciatus faskar #5
37. fish seemak
100. Caranx large jackfil Qufdâr #100

Scientific name	English	Arabic
1. <u>Chirocentrus dorab</u>	large tooth herring	hiff
2. <u>Terapon puta</u>	striped grunt	zamrūr
3. <u>Gnathodentex</u> ? ^{scarus} haffara	square nose porgy	gurqufānah
4. <u>Sparus cuvieri</u>	snapper porgy	subaiti
5. <u>Sparus bifasciatus</u>	band head porgy	faskar
6. <u>Plectorhynchus</u>	spotted grunt	yāhāmāh
7. <u>Scarus dussumieri</u>	parrot fish	qāin
8. <u>Sillago sihama</u>	sand perch	hāsūn
9. <u>Nemipterus japonicus</u>	pink snapper	bāsīyah
10. <u>Caranx crumenophthalmus</u>	goggle eye scad	shūrah
11. <u>Hemiramphus</u>	half beak	sils
12. <u>Parapercis smithii</u>	barred sand perch	zyb hair
13. <u>Dorosoma nasus</u>	thread herring	īwāf
14. <u>Chorinemus</u>	leather jack (small)	lahlāh (sai hat)
15. <u>Sparus spinifer</u>	hump back porgy	thaur
16. <u>Seriola</u> large 2'	smooth jack	rabībāh
17. <u>Cybium commersonii</u> & <u>C. gottatum</u>	King mackerel	kar'ād
18. <u>Callinectes</u> ?	blue claw crab	qub qub
19. <u>Scorpaena</u>	scorpion fish	farjālah
20. <u>Gastropoda</u>	small snail (salt water)	subān
21. <u>Decapoda</u>	ghost crab	barrjinn
22. <u>Sardinella</u> , <u>Dussumiera</u> , <u>Engraulidae</u>	sardines, anchovy	'ūm
23. <u>Tylosurus</u>	bill fish	ubbarī (small), hāqūl (large)
24. <u>Cyprinodon dispar</u>	Kelly fish	'ufti
25. <u>Gerres</u>	mojarra	muṣallagah
26. <u>Platycephalus maculipinna</u>	flat head	waharah
27. <u>Sargus noct</u>	spot tail porgy	mushamah
28. <u>Crenidens crenidens</u>	brown tooth porgy	battānah
29. <u>Sparus datnia</u>	broad porgy	shīm

Scientific name	English	Persian Gulf Arabic
30. <u>Apogon thurstoni</u>	cardinal fish	sihat al ra'i
31. —	sand lizard	wazāghah
32. <u>Paramonacanthus</u>	file fish	baghūmī
33. <u>Scolopsis personatus</u>	brown line grunt	bzaimīyah
34. <u>Scolopsis</u>	brown striped grunt	zarrā'ah
35. <u>Plesiops</u> , <u>Pomacentrus</u> , <u>Abudefduf</u>	demoiselle	q'aisī
36. <u>Labridae</u> , <u>Gobiidae</u> , <u>Blenniidae</u>	wrasse, gobies, blennies	nabbāt
37. <u>Hydrophis</u>	sea snake (poisonous)	baljanai
38. <u>Gerres punctatus</u>	thread fin mojarra	rīyāshah
39. <u>Gerres</u> (see 25)		
40. <u>Pleuronectidae</u>	thick flatfish	Khūfā'ah
41. <u>Batrachus grunniens</u>	toad fish	qumqāmāh
42. <u>Megaprotodon</u>	orange & black butterfly fish	raq'ah
43. <u>Pomacanthus maculosus</u>	angel fish	'unfūz
44. <u>Lutjanus</u>	spot snapper	naisarah
45. <u>Epinephelus tauvina</u>	spotted grouper	Hamūr (large), talīl (small)
46. <u>Lethrinus nebulosus</u>	dog face porgy	shubdhūl (small), shārī (large)
47. <u>Lethrinus miniatus</u>	red gill dog face porgy	bakhshīyah
48. <u>Atherinidae</u>	silver side	markūzah
49. <u>Gnathodentex</u> ? (see #3)		
50. <u>Henisichus acuminatus</u>	black & white butterfly fish	muṣht al'arūs, mushait
51. <u>Decapterus russelli</u>	mackerel scad	jinnaiyah
52. <u>Cephalopholis</u> ?	black grouper	subaiti ^{sakhali (Gairin)} bur tam
53. <u>Seriola</u> ?	smooth jack	samak at fair
54. <u>Plates quadrilineatus</u>	black striped grunt	jimjāmāh
55. <u>Theraps orientalis</u> (Lund)	mole lobster	um al rubyān
56. —	shrimp	rubyān
57. <u>Sparus datnia</u> (see #29)		
58. <u>Ostracion cubicus</u>	trunk fish	samak at yūnis
59. <u>Arius thalassinus</u>	sea catfish	kimn

scientific name	English	Arabic
60. <u>Ablennes biens</u>	flat sided billfish	ghurraidhi
61. <u>Scombridae</u>	tunas, bonitos	jibabāh (Bahrain), Tibban (Saihat)
62. <u>Sphyræna</u>	barracuda	dwailmī (small), jidd (large)
63. <u>Rhynchobatus</u>	guitar ray	hirairī (small), sūs (over 1 meter)
64. <u>Pleuronectidae</u>	(see #40)	
65. <u>Pleuronectidae</u>	thin flounder	taba q. liz iq
66. <u>Sphyræna</u>	hammerhead shark	aqrār
67. <u>Siganus siganus</u>	spike perch	sāfiyah 'arabiyyah
68. <u>Siganus punctatus?</u>	reticulated " "	sāfiyah sunaifi
69. <u>Triacanthus indicus</u>	3 spined leather fish	kulaib al daw
70. <u>Crenidens crenidens</u>	(see 25)	
71.	bottom green rooted grass	mash'ūrah
72. <u>Trypan</u>	sting ray	lakhmah
73. <u>Blenniidae</u> (see also #79)	large blenny	farjāl
74.	branch coral	'arīsh
75.	brain coral	bajimah
76. <u>Cephalopoda</u>	cuttle fish	khath thāq
77. <u>Chiloscyllium griseum</u>	nurse shark	haypāsah
78. <u>Lutjanus</u>	brown snapper	shuqqarah
79. <u>Arothron (Tetraodon)</u>	blowfish	fugl
80. <u>Chelonodon patoca</u>	smooth blowfish	'an zah
81. <u>Garcharias menisorrh</u>	grey shark (small species)	nā'ūz
82. <u>Rachycentron canadus</u>	cobia	sikh
83. <u>Coelenterata</u>	cross jelly fish (poisonous)	lwaithi
84. "	long tentacled jellyfish	dūl
85. "	large white jellyfish etc. (non-poisonous)	fughlūl
86. <u>Echinodermata</u>	short spined sea urchin	shūtah
87. "	long spined " "	rammāyāh
88. <u>Chorinemus lysar</u>	leather jach (large)	z. ul'ah

scientific name	English	Arabic
89. <u>Brachirus orientalis</u>	sole	hofār
90. <u>Plotosus anguillaris</u>	poison catfish	'āi
91. <u>Echeneis naucrates</u>	shark sucker	lazzāq
92.	fish hawk osprey	atū haqub
93. <u>Choerodon</u>	large wrasse	haqrūr
94. <u>Mugil</u>	large mullet	large = biauh, maidi ^{small}
95. <u>Lutjanus</u>	red fin snapper	shekkah
96. <u>Caranx (small)</u>	jack fish	rabīb
97. <u>Tylosurus</u> (see 23)		
98. <u>Pristis zysron</u>	sawfish ray	sayyāfi
99. <u>Lutjanus coccineus?</u>	red snapper	shuqqarah ^(see 78)
100. <u>Caranx</u>	large jackfish	qūf dar
101. broad porgy (dried)	probably misnamed "burtam" in Manama market	
102. <u>Sphyræna</u>	barracuda (4 inch yf)	halir
103. <u>Mullidae</u> (see #9)	yellow lined goatfish	jinnaisī, būsīyah
104. <u>Euthynnus alleteratus?</u>	^{"bonito"} wet salt fillet (Manama)	mal hah
105. <u>Hippocampus</u>	sea horse	wuzz
106. <u>Exocoetidae</u>	flying fish	jarādah
107. <u>Mullidae</u>	red goatfish	hāmar 'arabi
108. "	black goatfish	hāmar bahrainī
109. <u>Istiophorus?</u>	marlin, sword fish	silsāl
110. <u>Gastropoda</u>	brown snail	wudili
111. <u>Sparus spinifer</u>	pink porgy (no hump)	baqarah
112. <u>Trachinotus</u>	pompano	bint at fair
113. <u>Plectrochinchus</u>	small grey grunt	mtah, hobur
114.	Ctenophore shaped jellyfish	qullīyānah
115. <u>Platax</u>	crescent angel fish	amord?
116. <u>Terapon jarbua</u>	target fish	dhīb (also a shark?)
117. <u>Caranx</u>	silver jack (small)	jibb

scientific name	English	Arabic
118. <u>Caranx</u> (see #53)		
119. <u>Caranx</u>	jackfish (small)	ūthairī?
120. <u>Plectorhynchus</u>	large grey grunt	shukūl (saidat)
121. long spined sea anemone (see #87)		
122. <u>Ophichthys</u>	worm eel	markūkah
123. <u>Lethrinus</u>	black dog face porgy	imokh?
124.	sea turtle	hamasah
125. filefish (see #32)		
126.	sea weed	Kinn
127.	brown frizzle sea weed	hashish
128. <u>Ulva</u>	sea lettuce	Kinn
129.	clam	?
130. pearl oyster		shigerr, kharāb?
131.	pearl	lūlū
132.	sea turtle (see #123)	
133. <u>Lutjanus</u> (spot) (see #44)		
134. <u>Trachinotus</u> (see 112)		
135.	oyster (true, edible)	kharrātah
136. <u>Caranx</u> ?	jackfish	khail
137. -	shark	farsh?
138.	like karād (round white, smaller)	hammām
139.	rock bottom	gasar
140.		imad? (see 123)
141. <u>Lethrinus miniatus</u> (see 47)	red gill porgy	bakbāshīn
142. <u>Mugil</u>	small mullet	maidī
143.	white like suba'itī, smaller	badhah
144. <u>Plectorhynchus</u> (see #6)	spotted grunt ("like sāfi, only less scales")	yanamah
145.	billfish	ghilī?
146.	edible oyster (see #135)	

Journal Bombay Natural History Soc. vol. XXXI, no. 4
1926

good references on fish of P. Gulf & pearl fisheries
pp. 651-52

pp. 643-6 History of British marine & river surveys in
the Persian Gulf.

"Summary of Sci. research in the Persian Gulf" by A.T. Wilson

Persian Gulf fishes cont.

scientific name	English	Arabic
147.		lūlūh?
148. <u>Caranx</u> ?	(blue grey back, dark meat)	sayd?
149. <u>Petrometopon</u> ?	grouper (black spots)	kanainūwah
150. <u>Istiophorus</u> ?	swordfish, marlin	jarjūr abū saif (see #109)
151. <u>Sparus spinifer</u> (see #15)		
152. <u>Cyprinodon dispar</u>	Killyfish	karacīm (Hofūf)
153. <u>Mugil</u>	fresh water mullet	hurt (Hofūf)
154.	fresh water snail	haswah "
155.	fresh water turtle	jā'uni kraidī "
156.	fresh water rooted grass	hash hīsh "
157.	date garden spring	'ain "
158.	scaleless fish	hīf
159. <u>Carcharias</u>	large shark	jarjūr
160.	grouped rocks on bottom	fasht
161.	hermit crab	khabbānah
162. <u>Trichiurus muticus</u> (Red Sea)	scabbard fish	Kumfer
163. <u>Carcharias</u>	shark	khattaf

13. Giddie & Seea Lutjanus?
14. Caranias tricuspidatus coolie
15. Thynnus? Hour✓
16. Belone annulata Khar Koor✓
17. Caranx crumenophthalmos? dahi✓
or Priacanthus?
18. Ecleneis Sukhulla✓
19. Harpodon nehereus bombil✓
20. Tarpon? tulloo✓

finis

fishes mostly from Jask according to author

Middle East Science a survey of subjects other than agriculture

By E. B. Worthington, a report to the Director General

Middle East supply centre August 1945

London; His Majesty's Stationery Office 1946

Oxford University Press

p. 111-121 Chap. X Marine Fisheries (brief account of Red Sea, Caspian, R. Gulf) ^{& East Mediterranean}

p. 122-140 Chap. XI Inland Fisheries p.p. 129-138 good account

of fish farming in Palestine, mostly carp pond culture
1½ meters in depth with mention of a species of *Tilapia* as
an alternative fish. *Tilapia galilea* 'Musht'. There is also
mention of the use of *Gambusia* for mosquito control in the
ponds off the river Jordan. Mention also is made of a species of
Burbus 'salmon' occurring in the Euphrates River.

P. 130 - "The carp normally breed in the spring and growth is very
rapid, so that they attain a market size of ¾ kg. each about
8 months after hatching from the egg." a kilogram is 2½ lbs.

p. 119 Gulf of Aden - "at Mukhalla successful experiments -- cooking sardines in vats,
expressing oil with hand-press, and drying residue for fodder or manure."

Bombay Nat. Hist Soc. Vol. XXV No. 1, Mar. 1917

Game Fishes of the Persian Gulf Part II Major W. H. Lane

Pp. 123-135

Mehron & Jarra

1. Caranx ciliaris Kush
2. Caranx speciosus? Kobdar
3. Caranx armatus Rushtk✓
4. Drepane punctata Shingoo✓
5. Holocanthus pantherus
Convex & deep no teeth or jaws Tengour✓
Caudal deeply forked & long
6. ^{Pagrus} Agrus yrinifer Copper✓
7. Chrysophrys laffara Dukh Mullah Mullah's daughter✓
8. Serranus miniatus Bahilood✓
9. Lutjanus roseus Kher✓
10. Mullet (Mugil sp.) Bi-ach, Bai, Pitt✓
11. Chanos salmonus Ti-Mahna✓
12. Acirhanphus Moran✓

Part I 723-748 Vol. XXIV No. 1 Oct. 1916

1. Caranx jarra ^{photos} square head pirao✓
2. Caranx nigripinnis Gishran✓
3. Caranx malabaricus shaberi✓
4. C. carangus dabsi✓
5. C. gallus pazeel✓
6. Chorinemus lysan saran✓
7. Cybium commersonii Surmai or seer✓
8. Sphyraena obtusata Koot✓
9. Polynemus tetradactylus rajgoo✓
10. Serranus stoliczka Hamur✓
11. Serranus arcuolatus Ieddum✓
12. Lutjanus argentimaculatus surkhoo✓

1. Carcharias sp.
2. Dasybatis grey
3. Dasybatis spots
4. Bothus
5. Gymnothorax brown
6. Gymnothorax black spot grey
7. Gymnothorax black & grey bands
8. Ophichthys yellow eel
9. Callionymus
10. Myripristis
11. Holocentrus white
12. Holocentrus red & white
14. Holocentrus red & orange
15. Sardinella
16. Heniochus
17. Atherina or Præserus
18. Dussumiera salmani
19. Sphyræna barracuda?
20. Mugil (Chelon)
21. Cyprinodon dispar
22. Apogon black
23. Apogon black shined
24. Apogon brown
25. Apogon red
26. Apogon large tooth
27. Epinephelus brown & white
28. Cephalopholis white speck black
29. Epinephelus black spots on white
30. Cephalopholis red & blue spots seen
31. Epinephelus longtail red purple spots
32. Pseudochromis
33. Plesiops
34. Pseudochromis long
35. Dascyllus aruanus
36. Abudefduf marginatus
37. Abudefduf sand color ^{black spot}
38. Pomacentrus black
39. Pomacentrus black ^{yellow patch}
40. Pomacentrus yellow tail
41. Pomacentrus white tail
42. Chromis blue
44. Heniochus acuminatus
45. Scorpaena red
46. Scorpaena black
47. Scorpaena high brown
48. Gerres
49. Sparus bifasciatus
50. Gnathodentex? large
51. Crenidens crenidens
52. Lethrinus nebulosus
53. Lethrinus black bands
54. Lutjanus spot
55. Lutjanus red
56. Chaetodon lunula
57. Chaetodon white patch
58. Chaetodon dorsal ^{black} spot
59. white & pink pigfish
60. Mullus black & rose
61. Mullus yellow stripe
62. Nasus cornutus

63. Zebrazoma
64. Chaetodon Ctenochaetus
65. Acanthurus (black)
66. Acanthurus white peduncle
67. Acanthurus blue stripe
68. Acanthurus 2 orange ^{black &} spines
69. Halichoeres red & green
70. H. red & purple
71. wrasse green & red 3 black dots
72. " Red dots on dark
73. " Red lines on green
74. large black labrid
75. Labridichthys extensile mouth
76. Siganus siganus
77. Siganus black & white spots
78. Scarus blue
79. Scarus yellow
80. Scarus blue & pink
81. Sparus black
82. Scarus pink & green
84. Bathygobius
85. Goby white
86. Eleotrid black
87. Salarias grey
88. Blenny short black
89. Blenny long black
90. Periophthalmus
91. Chorinemus lycan
92. Decapterus punctatus
93. Caranx large white
94. Cybiom guttatum
95. Caranx small silver
96. Caranx black specks ^{below in} young
97. Conger
98. Balistes black
99. Balistes rectangular
100. Elops? salmani
101. Megaprotodon Red Sea type
102. Chirritus
103. Pterois
104. black wrasse
105. black white & blue wrasse
106. Plectorhynchus large grey
107. Plectorhynchus spotted
108. Pristis zysron
109. Rhynchobatus
110. flying fish
111. Ostracion cubicus
112. Arothron black
113. Arothron white belly
114. Trichurus not seen
115. turtle (sea) "

121. long spined sea urchin rummoy & rammōyī
 122. Ophichthys nowchooch naukūkah
 123. Lethrinus ^{black blotches} imō'ka? Lethrinus niger?
 124. sea turtle ehmisah hamasah
 125. filefish goomy (see #32)
 126. sea weed chem Kinn
 127. ^{brown} seaweed ~~frizzle~~ hashish
 128. ^{& possibly ulva} green ulva chem Kinn
 129. clam ~~shigerr~~ edible in winter only
 130. pearl oyster shigerr kharāb? good bait
 131. pearl 10/10 a
 132. sea turtle ehmisah see 124
 133. Lutjanus (spot) naisarah
 134. Trachinotus Bint al tair? see 112
 135. oyster (edible, true) Kharrātah
 136. Caranx ~~Khail~~ Khail
 137. shark farsh?
 138. like Kar'ad, round white smaller Hammām
 139. rock bottom gasar
 140. imad?
 141. probably Lethrinus miniatus bash hayn bakhshin
 142. small mullet maidi
 143. white like sbaiti, smaller badhah
 144. like safiah, only, less scales yenem yanamah ^{Plectrothynchos?}
 145. ghili needlefish?
 146. edible oyster (see 135)
 147. waluh? Plesiops 6.7
 148. Caranx sayd? ^{bluegrey back dark neat}
 149. Petrometopon (black spots) ^{Kanainbunh} Chnaynuwah ^{3.4 lbs.}
 150. Marlin swordfish jarjūr abu saif (see 109)

64. flounder samak saidna sulaiman
 65. Trichiurus Kūmfer
 66. Ostracion cubicus abu sandūk
 67. flying fish Abu Tayar
 68. Turtle Bis al bahar
 69. Jack Caranx Abu бага
 70. Nasus Abu gern
 71. guitar fish Rynchobatus Dafam
 72. Pristis zylon Abumenshar
 73. ~~Sparus~~ black grouper sūhofar
 74. Lutjanus (spot snapper) hebā? samlog
 75. ~~Parapercis~~ ^{Parapercis} Platycephalus? wuzagh

Persian Gulf (cont.) from P. 180
(see 15)

151. Sparus spinifer hump back porgy ^{see 15} thaur "ox"
 152. Cyprinodon dispar (name at Hofhuf) haracim
 153. Mugil (Chelon) hurt
 154. freshwater snail Haswah
 155. fresh water turtle Jā'uni Kraidī
 156. fresh water grass hashish
 157. date garden spring 'ain
 158. scaleless fish hif
 159. large shark jarjūr
 160. grouped rocks fasht

182 Arabic names Red Sea Jidda
63. Agab = devil fish

62. barracuda - agam

- | | | | |
|-------------------------------|-------------------|---------------------------------|------------------------|
| 1. Chorinemus | dorab | 31. Elops? | salmoni |
| 2. Cybium commersonii | dorak | 32. Spotted Croaker | nageb |
| 3. Tylosurus | Hilm | 33. mullet | arabi |
| 4. Shark | "OS" large | 34. pompano | abu gurs |
| 5. Acanthurus (blue stripes) | sahal | 35. Holocentrus | kanuf |
| 6. Caranx | biot? | 36. large Plectorhynchus (grey) | shirtfa |
| 7. Nasus | abu gurn | 37. spade fish | kanuf |
| 8. Scarus species | dowali | 38. shrimp | rubyan |
| 9. Lethrinus | shaur | 39. Caranx sp. (large) | gherm |
| 10. Siganus siganus | sijan | 40. Ray | lugetta |
| 11. Epinephelus (black) | Kushar | 41. Lutjanus (reddish) | teemer, buharra |
| 12. Balistes | sharam | 42. fish, fish man | howadh |
| 13. Lutjanus (spot) | Hebria | 43. Red-headed lionfish | nahid, zumbuk |
| 14. pink scarus | Hareed i | 44. Octopus | Kaukabān |
| 15. Gerres | guss | 45. 1 mast. sailboat | yaulah |
| 16. half beak | gumburūl | 46. 2 masted wood vessels | sambūk. |
| 17. Labrids | Abu mless | 47. Scomberomorus commersonii | = dorak |
| 18. Cephalopods blue spots | Zarban, Abu bulla | 48. Chorinemus | - dorab. |
| 19. Sphyræna | agam | 49. Caranx (silver) | - gherm |
| 20. Sparus bifasciatus | rubug | 50. croaker | - nageb |
| 21. goat fish | abu digeen | 51. mullet | arabi |
| 22. Lutjanus red fins | sha fenna | 52. Spade fish | kanuf |
| 23. Siganus black white spots | sijanna | 53. Red-headed lionfish | - nahid (see 43) |
| 24. Acanthurus (black) | gahan | 54. Caranx (large silver) | gherm |
| 25. Blue wrasse | garab | 55. 1 black spapper | - Metalutjanus (Gubat) |
| 26. Round scad (15") | drak | 56. Grammistes | Gubat Ashra Ashra |
| 27. Epinephelus (long tail) | luti | 57. yellow parrot (Sarus) | dūli |
| 28. E. " black spotted | sha howi | 58. blowfish | dremā |
| 29. Plectorhynchus | guthreen | 60. flounder | Abu tū buck |
| 30. Grab (blue) | abu nguss | 61. Lutjanus red | fares |

(cont. 181)

Fish species collected from Persian Gulf # seen but no spec. saved
(Bleeker classification)

183

- | | |
|--|--|
| 1. nurse shark (Chiloscyllium griseum) | 31. Nemipterus japonicus |
| 2. Trygon gerradi ? Pasybatis | 32. Scolopsis personatus striped |
| 3. devil fish | 33. Scolopsis |
| 4. Rhynchobatus djiddensis | 34. Gerres punctatus |
| 5. R. granulatus | 35. Gerres |
| 6. Chirocentrus odorab | 36. Plectorhynchus canctus yellow whiskers |
| 7. Dussumiera acuta | 37. Upeneus |
| 8. Dorosoma nasus | 38. Lethrinus nebulosus |
| 9. anchovy | 39. Lethrinus miniatus |
| 10. Sardine (2 spec.?) | 40. Sparus spinifer (thor) |
| 11. Arius thalassinus | 41. Sparus bifasciatus |
| 12. Tylosurus sp. | 42. Sparus datnia |
| 13. Ablennes hians | 43. Sparus covieri |
| 14. Hemirhamphus | 44. Sargus noct |
| 15. Flying fish | 45. Crenidens crenidens |
| 16. Cyprinodon dispar | 46. Gnathodentex ? Sparus haffara |
| 17. Epinephelus tauvina | 47. Megaprotodon |
| 18. black grouper white spots | 48. Heniochus acuminatus |
| 19. Therapon Heraps | 49. Pomacanthus maculosus |
| 20. T. jacobus | 50. Pomacentrus (black) |
| 21. Pelates quadrilineatus | 51. Abudedefduf marginatus |
| 22. Apogon thorstonii | 52. Scarus dossumieri |
| 23. Sillago sihama | 53. Halichoeres (green) |
| 24. Caranx crumenophthalmus | 54. wrasse (grey & brown) |
| 25. Caranx sp. | 55. Siganus punctatus |
| 26. Seriola | 56. Siganus siganus? |
| 27. Chorinemus lysan | 57. Parapercis smithii |
| 28. Trachinotus baillonii | 58. Scomber microlepidotus |
| 29. Lutjanus (black spot) fulviflamma? | 59. Scomberomorus commersonii? Cybium |
| 30. Lutjanus | 60. Gobius sp. |

61. *Petroscirtes punctatus*
 62. *Salarias?* with tufts
 63. *Sphyraena*
 64. *Chelon* (mugil)
 65. *Atherina forskali*
 66. *Atherinid* (blue head)
 67. *Scorpaenid*
 68. *Platycephalus maculipinna*
 69. *Arnoglossus aspidos*
 70. *Solea elongata?*
 71. *Triacanthus inidicus*
 72. *Paramonacanthus*
 73. *Ostracion* reddish brown with blue dots in life
 #74. *Spheroides inermis*
 75. *Tetraodon stellatus*
 76. *Chilonodon patoca*
 77. *Batrachus grunniens*
 78. *Syngnathid* (2 species possibly)
 79. *Pegasus*
 80. *Plesiops nigricans*
 81. *Plesiops* (brown)
 82. *Carcharias menisorrah*
 83. *C. acutus*
 84. *Salarias sp.*
 85. *Periophthalmus*
 86. *Callionymus sagitta?* U-48-72
 87. # *Aetobatus* May 23
 88. *Apogon* (striped) U-48-71
 89. *Mullus* (red sides) U-48-71
 90. *Dermogenys* U-48-75

- # 91. Tuna (black pectoral bronze lateral stripe)
 # 92. *Torpedo panthera?* May 29
 # 93. *Pristis zysron* (teeth at Al Khobar May 30)
 94. *Brachirus orientalis* U-48-86
 95. *Plotosus anguillar?* U-48-87
 96. *Echeneis naucrates* U-48-89
 * 97. *Cybium guttatum* (spots) 6/9/48 dried
 # 98. *Chocorodon* " "
 # 99. *Albacore?*
 # 100. sword fish or marlin (small)
 # 101. *Mulloidichthys auriflamma?* Bahraing sup. Manama
 # 102. *Gymnosarda alleteratus?* wet salt fillets
 # 103. *Caranx sp.* gulf dar
 104. *Periophthalmus* U-48-95
 105. *Hippocampus*
 106. *Trachinotus* U-48-98
 107. *pseudochromid* (blue & orange) U-48-104
 108. *Platex* U-48-108
 109. *Ophichthys* U-48-113
 110. *Plectorhynchus schotaf?* "shukkuh" large
 111. *Rachycentron canadus*
 112. *Bathygobius*
 113. *Cybium guttatum* see #97
 114. *Sphyra* hammerhead
 115. small goby

Box Contents

- #6 U-48-9 - 56 incl. (several specimens not included) 8 gal. completed May 13, 1948
 #22 trammel net, 1 coleman lamp, 1 copper dissecting tray
 #7 U-48-57 - U-48-86 (sev. omitted) + U-48-1-8, 8 gal. tank, completed June 6, 1948 desert water
 #5 U-48-87 - 115, 8 gal. tank completed June 24, 1948 + 2 bags 1 swim fin 1 15' seine
 #17 U-48-87 - 1115, 16 gal. tank completed June 24, 1948 1 bag, 1 knapsack
 #20 Copper 16 gal. tank with screw top (not used) alcohol
 #19 U-48-145 16 gal. tank Jidda fish July 20, 1948 2 flippers & 2 seines
 #2 16 gal. tank of rotenone to be taken on plane
 #15 8 gal. copper tank with fish, 2 collecting pails dry shells, Aug. 5 8/15/48
 #4 11 jars with rotenone & invertebrates in alcohol, 1 water bag, old ring net
 #16 16 gal. copper tank with rotenone saved for Stanley Aug. 5 4 balls twine knapsack & Kim
 large box 2 rubber boats, 2 dredges, mosq. repell, 2 minnow series, 1 native fish trap, knapsack etc.
 #3 tall box 100' seine & bobbinet net?

Catch of Shanad, Scomberomorus									
	date	sex	S.L.	lbs	time	stomach	right gill	left rakers (total)	
1.	Apr. 21	♀ imm.	485 mm.	1 1/2	12:40 noon	empty	6	6	
2.	"	"	455 mm.	1 1/4	12:50 "	herring	7	6	
3.	Apr. 22	♂ ripe	795 "	8 1/2	8:35 A.M.	shrimp	4	4	
4. U-48-15	"	imm.	488 "	1 1/4	2:55 P.M.				
5.	Apr. 25	♀ imm.	580 "	2 1/2 lbs	9:25 A.M.	shrimp	7	5	
6.	Apr. 26	♀ ripe but not flowing	830 "	8	2:30 P.M.	shrimp (little piece)	7	7	
7.	"	♂ not quite ripe	615 "	3 1/2	2:33 P.M.	shrimp	55		
8. U-48-23	"		595	3	3:40 P.M.				
9.	Apr. 28	immature	500?	1 1/2?	9:45 A.M.	pieces shrimp	8	6	stumps
10.	Apr. 29	unripe ♂	600	3	6:00 P.M.	herring	7	7	
11. r+w miller	May. 3	imm. ♀	560	1 1/2	8:30 A.M.	empty	7	7	
12. Freehook Spoon	May. 4	ripe ♂	760	7 1/2	10:00 A.M.	5 fish	4	4	+ rudiment
13. U-48-37 r+w miller	May 4	imm.	510	1 1/4	11:10 A.M.				
14. r+w miller	May 4	imm.	510	1 lb.	11:40 A.M.				
15. orange + w miller	May 5	imm. ♂	455	1 lb.	6:45 P.M.	shrimp	7	7	white worm parasites
16. small r+w miller	May 9	imm ♂	555	2 lbs	7:45 A.M.	empty	6	9	
17. Abdulla Spoon	"	ripe ♂	775	7 lbs	7:50 A.M.	"	6	6	
18. O+white	"	♀ not quite ripe	740	6 lbs	9:20 A.M.	small fish	7	9	
19. black & white grouper milled	"		490	4 lbs.	10:30 A.M.				U-48-49
20. Shanad orange + white	"	♀ imm	600	3 "	10:35 A.M.	empty	6	5	
21. r+w miller	"	imm ♀	550	2 1/2	3:00 P.M.	"	6	6	
22. r+w miller	"	mature ♀	860	8 1/2	3:45 P.M.	"	5	6	
23. barracuda	"	"	660	4	4:30 P.M.	empty	-		
24. Shanad white + blue bone	May 14	imm ♀	560	2	10:00 A.M.	"	6	5	
25. barracuda silver spoon	May 15		520	1 1/2	7:45 A.M.	"			U-48-59
26. barracuda red + white jig	"	♀ not ripe	620	3	8:25 A.M.	"			
27. Shanad	"	♂ ripe	845	8 1/2	10:45 A.M.	"	8	7	
28. silver spoon	"		600	2	12:10 P.M.				U-48-61
29. red + white miller	"	♂	810	7	12:17 P.M.	"	6	7	
30. "	"	♂ ripe	650	3 1/2	12:25 P.M.	3 seeds	6	5	

							stomach	
31. barracuda	Abdulla May	15	imm. ♀	1 1/2	47	5:05 P.M.	bill of large half beak with red tip	R. L.
32. "	orange + white	"	imm. ♀	2 lbs.	59	5:00 P.M.	empty	# #
33. Mackerel	white jig	♂	ripe May 26	10 lbs.	890	11:45 A.M.	"	7 7 head saved U-48-79
34. Chorinemus	orange + white	♂	near ripe May 29	13	86	9:45 A.M.	shrimp	
35. barracuda	O+V	♀	near ripe June 1	3 lbs.	65 cm.	11:00 A.M.	empty	
36. "	raw	♀	near ripe "		43 cm.	2:40 P.M.	"	
37. "	white bone	-	June 23		50 cm.	7:30 P.M.	-	-

Red Sea Jidda Harbor July 5, 1948

1 silver spoon 1 Caranx (white) 20 lbs ♀ near ripe 9:00 A.M. stomach empty(?)



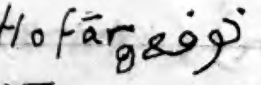
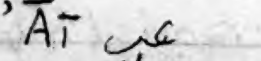
1 silver spoon 1 Shpyraenabarracuda 14 lbs. S.L. 38" A-9, D-9


1 Caranx (see above) 33" tail fork, depth 3, head 3 1/4, 28 hard scutes, P-20 VII-17, A-II-16

1907 "Fishes of South Arabia & Sokatra"		
# Arab names from Steindachners		
<u>Siganus</u>	<u>S. siganus</u> (at Markat)	ṣāfiyeh
<u>Lutjanus</u>	<u>fulviflamma</u>	Hobêrah (in Othman)
<u>Pomadourus</u>	<u>hasta</u>	nâgem
<u>Echeneis</u>	<u>naucrater</u>	lezôg
<u>Mugil</u>	<u>seheli</u>	arabi
# names which correspond to Red Sea & Persian Gulf names		

1. *Chirocentrus dorab* hiff
2. *Terapon puta* zamrūr ("whistler")
3. porgy (square nose) faskhar ^{qurqufānah}
4. *Sparus cuneri* sbaitī sbaitī
5. band head porgy faskhar
6. chub (*Plectrothychus* or *Hypoclinemus*) inimih inimah
7. *Scarus dussumieri* qain geen
8. *Sillago sihama* hāsūn
9. *Nemipterus* bāsīyah
10. Scad sīnah
11. halfbeak sīs
12. paraperoid zyb haīr
13. *Chanos (Dorosoma)* twāf twāf
14. leatherjack lahlahah
15. *Sparus spinifer* Thūr (thaur?)
16. *Seriola* rapībah (large)
17. *Scorpaenoides* chanad kanad (chanad)
18. blue crab gūk gūk? qubqub
19. scorpaenid (frijali?) faryaleh
20. small snails subān
21. land crab bursjīn (land devil)
22. 'ūm sardines 'ūmah (sing.)
23. *Tylosurus* ubbarī = small, large = hāgūf
24. *C. dispar* 'uftī
25. Gerrid Musallagah
26. *Platycephalus* Waharah
27. *Sargus noct* Mshawah
28. ~~Common~~ small porgy battāneh, *C. crenidens* brown tooth porgy
29. common small porgy ^{yellow fins} (shīm) shīm *S. datnia*
30. *Apogon thurstoni* shīhat al raīf (shepherd's food)

31. sand lizard wuzāqah
32. filefish bghūmy baghūmī
33. *Scolopsis personatus* bzāimīyah bzāimīyah
34. *Scolopsis* striped Zarrah
35. *Plesiops* & *Pomacentrids* Q'eyss a'ist Abu d'aduf marginatus
36. green wrasse, gobies, etc. nabbāt
37. sea snake bal janāī (bu Janāh = like a stick) Hydrophis
38. short gerrid (high dorsal) rīyāshah (feather)
39. long gerrid musallagah (see #25)
40. leftside flatfish khūfa'ah
41. koad fish gumqamah Kum Komah
42. ^{Chaetodon} *Megaprotodon* raqāh = "patch"
43. angel fish 'unfūz
44. ~~grouper~~ *Lutjanus* (spot) naisarah
45. small spotted grouper bālūl ^{small}
46. *Lethrinus* (greendots) shuhdhūdī, shari = large Lethrinus nebulosus
47. *Lethrinus* (redgills) bakhshīyah Lethrinus miniatus
48. Atherinid (manshūzah) mankūzah
49. silver grunt blunt nose qurqufān (see #3)
50. *Heniochus* ~~*C. crenidens*~~ musht al 'arūs, mushait
51. mackerel scad jinnaiyah Decapterus russelli?
52. black grouper sbaitī burtam or "burtam", sbaiti, sakhalah
53. *Seriola* (small) sama K at fair
54. striped grunt (Pelates) (yimyāmah) jī jīmāmah quadrilīneat
55. *Maledobster* Um al Rubyān
56. shrimp rubyān
57. silver porgy *Sparus datnia* shīm (see #29) shīam
58. Trunk fish samkatt yūnis ^{son} *Ostracion cubicus*
59. cat fish (chimm) (kim) kimm
60. *Abuannas hime* ghurraidhī flat gar

61. tuna (scomber) jibābah (Bahrain) or Tibbon (Saihat)
62. barracuda dwailmī (small) jidd (large)
63. guitar fish ~~1~~ morless hīrairī, sūs larger than 1 meter
64. thick flounder Khawfa'ah
65. thin flounder tabaqliziq
66. shark (hammerhead) (agran) agrān
67. Siganus ^{U-48-41} ~~U-48-41~~ ^{punctatus} ~~punctatus~~ sāfiyah 'arabīyah spike perch
68. Siganus ~~punctatus~~ ^{U-48-29} ~~U-48-29~~ ^{javus} ~~javus~~ sunaify (sāfiyah) sāfiyah sunaifiyah
69. Triacanthus ~~qumk'laib~~ ^{C. crenidens} ~~ad daw~~ (klaib = 1. Hle dog) Kulaib al daw
70. brown tooth porgy battānah see 28
71. bottom green grass mash'ūrah
72. ray (manta?) lakhmah
73. blenny farjāleh (farjāl)
74. branch coral 'arīsh
75. brain coral (byimih) bajimah
76. cuttlefish Khaththāg
77. nurse shark (Chiloscyllium) Hayaseh
78. Snapper (brown) shiqqarah
79. Arothron ^{Chitonodon} ~~Chitonodon~~ fuql
80. smooth puffer ^{Chitonodon} ~~Chitonodon~~ 'ini zeh (an zah = she goat)
81. Carcharias menisorrh nā'ūth z (th)
82. Rachycentron canadus sikh
83. Iwaithy 
84. dūl  aurelia
85. fughlūl
86. shītā sea urchin (short spine)
87. rammāyi sea urchin (long spine)
88. Chorinemus (large) zul'ah (thulah)
89. Sole U-48-86 Hofāg 
90. Plotosus anguillaris U-48-87 'Āī 

91. Echeneis (lezug) lazzāg
92. osprey abūhagub  ← Had abu mukowey near Danman
93. ~~Chorodon~~ (black) (negrur) nagrūr
94. large mullet biohk? biok biah
95. broad Caranx (botthin) (chekka?) shekkah
96. Lutjanus (red fins) rabīb caranx with narrow black bands
97. Needlefish hāgūt ^{hagut} hāgūt
98. sawfish saiyawthy ^{Abdullah} sayyāf (correction) Pristis zysron
99. Lutjanus coccineus? shigerr chigerr shuqqarah
100. Caranx sp. gūf dar (June 12) kūf dar
101. porgy (broad) burtam (this is sbaiti burtam see #52) ^{burtamah} sig.
102. 4" barracuda Halir
103. goat fish ^{with yellow line} ~~with salt~~ Gymnosarda
104. fillets ^{alleteratur?} malhah
105. Hippocampus wuzz? "geese"
106. flying fish jarādah (gerradah) "locust" U-48-69
107. goat fish (red) Hamer arabi hāmarah Arabīyah
108. goat fish (black) Hamer bahra'ni (black) "bahraintyah"
109. sword fish? silsāl
110. brown snail wudih wudili?
111. Sparus spinifer without bump ^{on} head beguerra cow baqarah
112. Trachinotus ^{small} bint at tair ^{at tair} bint ~~at tair~~ "daughter of bird"
113. Plectrohynchus or ~~Kyphosus?~~ ^{fine comb} teeth mthoa or Hobur
114. Ctenophore shaped ^{tunicate} jellyfish Salpa gileon Qullīyānah
115. Platax amord?
116. Terapon ^{target fish} jarboa veeb? ~~jibb~~
117. Smooth jack U-48-107 yeeb, jeeb jibb
118. small carangid ^{black spot} U-48-110 semech at tair (gamak ^{at} at tair?) see #53
119. " " ^{little} larger " ūthānī ūthainī?
120. large ^{grey} Plectrohynchus shukkūl Saihat (cont. p 180) ^{shukūl}

192				Anasco cont.			
color film		subject		time opening			
61. tu	1. sea & skiff	200	8	9. blue parrots	100	8	Smith & Anopheles pool
62. bo	2. Jidda rock	100	8	10. Hussein	"	"	"
63. gu	3. " "	"	"	11. " "	"	"	girl at well
64. th	4. Abdollahs 3 boys	"	6.2	12. a/7	"	"	"
65. th	5. " "	"	"	13. " "	"	"	camels
66. sh	6. Manama dusty long boats sky	"	4	14. Hamoor & Ahmed	50	8	"
67. Si	7. " "	"	"	15. " "	"	"	rice
68. Sig	8. " "	"	"	16. Abdullah & Sbaiti	"	"	shade pools patty
69. To	9. Fish cutters Ras Tanura	100	8	17. Sbaiti	"	"	"
70. brow	10. Fish catch	100	12	18. row boat	"	3.5	"
71. bo	11. Fish contractor	"	"	19. small east blackwhite dhow	8	8	Anasco color
72.	12. Swade & gang & Sbaiti	"	8	George 4 1/2"	"	7	1. Kim tree ?
73.	13. Kid & cobia	"	9	Rentz & sawfish saw	"	7	2. light stench
74.	14. Cobia	"	"	Ali & sawfish saw	"	7	3. " "
75.	15. Red sea fishing canoe	"	11	2 sawfish saws	"	7	4. ain Jeffur
76.	16. " "	"	7	" "	"	7	5. ain Frayhemna
77.	17. Jidda harbor & boats	100	8	Azzizia Curlews	"	11	6. " "
78.	18. 2 dhows squirrel fish	"	"	" crow or raven	"	11	7. Abdulla & Mulhis
79.	19. 2 parrots, Siganes long tailed	"	"	" crow flying	"	11	8. " "
80.	20. red grouper long tail red	"	"	camels	"	16	9. " "
81.	21. grouper & boy Jidda	"	"	Joe Smith & well	"	16	10. " "
82.	22. sunset	50	3.5	tree & house well	"	"	11. house & Mulhis
83.	23. dugout	100	8	goats & jebel	"	"	12. Abdulla & pick up
84.	24. Caranx sp.	"	"	Spring, garden, a jebel	"	"	13. "Farsi" with pointed
85.	25. " "	"	"	Burrez Springs	"	"	14. " " "
86.	26. barracuda	"	"	" "	"	"	15. Joe Smith & Anopheles
87.	27. large dark red snapper	"	"	" "	"	"	16. " "
88.	28. 6 man with fish	"	"	" car a mud wall filter	"	"	17. date drying ground
89.	29. Boy with fish	"	"	Hof huf market	"	8	18. " "
90.	30. blue parrots	"	"	" "	"	"	19. livestock
				" "	"	"	20. Arab horses

notes from Schultz Mar. 1948

make a collection

- marine common fishes caught by Gurley
- marine fish with special gear
- shore fish by rotenone
- stream fishes
- market fishes
- long line fishes

Traveler's checks as of June 18, 1948

B 54,072,342 - 45 5 \$20

A 61,125,150 - 52 3 \$10

Chen 193

"Fish Foods for Pond Fish"

Index to Contents

pp. 1-25 shore collections Al Azzizia to Ras Tanura Apr. 16

pp. 26-105 Ras Tanura "Palestine" collections Apr. 17 - June 29

pp. 77-90 Bahrain Is. "Palestine" collection June 17 - June 17

pp. 105-123 Shore collections from Jidda, Red sea with aid June 29 - July 21 Hussein Tahr

pp. 180 Arabic names Persian Gulf

pp. 184 Arabic names Red Sea

pp. 183-4 Persian Gulf fish species list including sight records

p. 185 - Museum box reassignment list

pp. 186-187 Catch statistics trolling R. Gulf and Red sea

pp. 188-190 Arabic fish names R. Gulf. (over)

p. 192 film (color) subject records.

Give Abdullah captain spear
 Give Abdullah shaman seine needles
 Give Hamed white sneakers
 Give Yusuf a knife
 Get Ahmed a ~~new~~ white T-shirt

Index (cont.)

- Red Sea species pp. 178-9
 Persian Gulf
- p. 123- July 22 -
- p. 176-7 Journ Bombay Nat. Hist Game fishes of P. Gulf
 Maj. W. H. Lane
- p. 176 E. B. Worthington Middle east fisheries & fish farming
- p. 139-143 Chaschuse Id.
- pp. 170-175 revised English-Arabic, scientific fish name list
- pp. 130-137 Hofuf notes (fresh water springs)
- pp. 168-169 name similarities between regions
- p. 165 M. M. Mohsen, names of Red Sea fishes

Lebanon fish Tannous, Afif

fariden
 subeldish. cuttlefish?
 marmoor
 Sanamoora-anchovies

used by Arabs in Lebanon but not
 of Arabic origin.

"bulldozer fish" see May 18

U.S.N.M. Red Sea fish 49296 et seq.
 & 47593 etc.

collect algae of all kinds from
 outlying islands.

Perosene Kelvinator herosene refrigerant flame
 refrigerator \$85 Army surplus.

car - Town Shopper - Los Angeles

merKub - boat

"The Arabs: a short history" Philip K. Hitti
 Princeton Univ. Press 1943

lizard = wazāghah
 = dammūsah (burrowing lizard) Bedu
 = Khūs wī (non burrowing lizard)

Mary D. Winn

129 Bolton St.

Baltimore 17

Paul Elliott, Conn. Fisheries U.S. Fish & Wild life
 Palmer

Kasha = dried sardines from Aden

